SIEMENS

MODULARIS Uro Plus

SP

Installation and Setting Instructions

LITHOSTAR MODULARIS

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Information about start-up

⚠WARNING	**Avoidance of light to serious, fatal injuries and avoidance of material damage.** **When performing service work and tests adhere to the product-specific safety information in the documents as well as the general safety information contained in ARTD Part 2.**

The system cables must be completely installed.

The system was completely assembled, programmed and tested at the factory (refer to the test certificate filed in the LOG book.)
During start-up, you will only need to perform a few tests or measurements to ensure that none of the settings has changed.

The measurement results identified with the " ✍ " symbol must be entered in the test certificate indicated or in the image quality measurement certificate.

The following tests applicable to the prescribed acceptance test in Germany in accordance with §16 of the X-ray ordinance or the acceptance test in the USA, were performed during factory testing and were documented in the test certificates:

- Visual test of filter values
- Fluoroscopic field - limit
- Fluoroscopy - dose rate
- Resolution and minimum contrast
- Test of kV accuracy
- Coincidence of radiation field and film center
- Centering of radiation field and monitor image
- Maximum skin dose rate
- System attenuation factor

NOTE	**These measurement values and the values additionally generated during start-up may be transferred from the test certificate to the Acceptance Test Certificate.**

Applicability and regulations for subsidiaries

Equivalent leakage current measurement

The equivalent leakage current must be measured where applicable under the requirements of DIN VDE 0751 Part 1.

Where DIN VDE 0751 does not apply, the subsidiaries should comply with the following regulations (refer to ARTD - 002.731.17), Safety technical regulations for installation and maintenance).

The local national regulations apply primarily for the subsidiaries.

In the event that there are no existing local regulations, the following provisions should be adhered to in the interest of the safety of customers, patients, employees and third parties as well as the company.

Initial measured value

The equivalent leakage current measurement was performed at the factory and the value measured was entered in test certificate 1. The measurement was made at the line voltage and line frequency indicated in test certificate 1.

If the line voltage or the line frequency on-site deviates from the information indicated upon delivery of the MODULARIS Uro Plus, the values given are invalid. The values should be marked invalid (crossed out with the comment "invalid values" and the service engineer should sign and date this copy).

The equivalent leakage current measurement must be repeated. The resulting value may not exceed 1 mA according to DIN VDE 0751 Part 1.

The initial measured value must be documented.

Repeat measurements

When service or repair work is performed on the primary power supply circuit (e.g. repairs to the power-on circuit), the equivalent leakage current test must be repeated. The values measured in the subsequent test may not exceed the threshold value of 1 mA as specified in VDE 0751, Part 1. In addition, they may not exceed the initial measured value by more than 50%. If the value exceeds this threshold, the system must be repaired. The value measured must be documented.

Required technical documents

• LITHOSTAR MODULARIS Service Instructions	SPL1-130.061.01
• MODULARIS Uro Plus Service Instructions	SPL1-130.061.02
• Modularis Adaption ARCADIS Orbic Installation Instr.	SPR2-320.814.04
• ARCADIS Orbic Installation Instructions	SPR2-320.812.02
• Monitor Trolley Installation Instructions	SPR2-310.812.02
• ARCADIS Orbic Start-up Instructions	SPR2-320.815.02
• SIREMOBIL Iso-C Installation Instructions	SPR2-230.031.02
• Monitor Trolley Installation Instructions	SPR2-230.031.01
• SIREMOBIL Iso-C Start-up Instructions	SPR2-230.034.01
• MODULARIS Uro Plus Operating Instructions	SPL1-130.620.01
• Shock Wave Pressure and Position Control Service Instructions	SPL2-120.074.01

Required tools and measurement devices

• Standard service kit	
• Service PC see Intranet Service Laptop for CSE's	
• PC connection cable, 5 m	99 00 440 RE999
• Internal line impedance meter	84 28 104 RE999
• Pressure test device	30 95 408 J1008
• Adapter for C-head	98 17 347 J1008
• ESD equipment	
• Protective conductor meter	44 15 899 RV090
• Digital Multimeter e.g. Fluke 187	99 94 831
• Pressure Test Unit	30 95 408 J1008
• Adapter for C-System	98 17 347 J1008
• Drill with speed control	n.a.
• Vacuum cleaner for vacuuming away the drill shavings	n.a. and
• Spray can or varnish applicator of the color white grained MED surface No. 4146 similar to RAL grayish white 9002.	99 00 705 RE999

Required material

- approx. 5 l distilled water

Protective measures

- Adhere to the protective measures described in Register 1 of the system binder.

⚠WARNING

Avoidance of light to serious, fatal injuries and avoidance of material damage.

- **When performing service work and tests adhere to the product-specific safety information in the documents, as well as the general safety information contained in ARTD Part 2.**
- **Disconnect the power cable when working on the system.**
- **Ensure compliance with general safety requirements when working with the system under power.**
- **Ensure compliance with ESD guidelines.**
- **Switch off the power prior to replacing modules or boards.**
- **After completing all service work and reattaching the covers, perform the protective conductor test according to ARTD-002.731.17.**
- **The protective conductor resistance must not exceed 0.2 ohms.**
- **When performing service work on the power-on module (replacing the power-on module or the power cable), measure and record the equivalent leakage current.**
- **Tests and adjustments performed with radiation on are identified by the radiation warning symbol ⚠ .**
  During these types of adjustments, radiation protection must be worn (Refer to ARTD, Part 2).

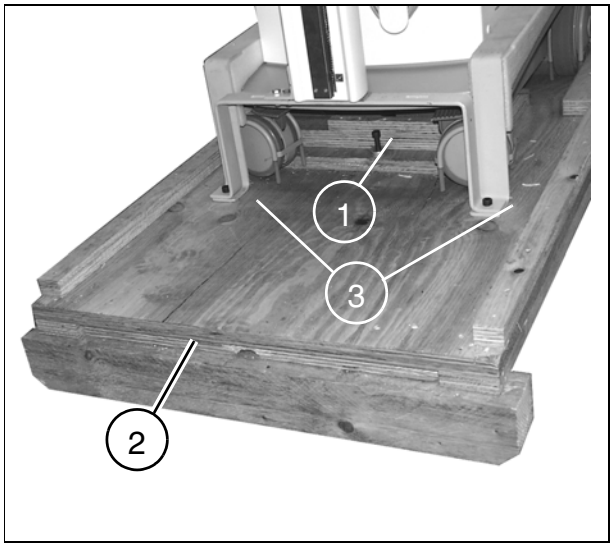

Fig. 1

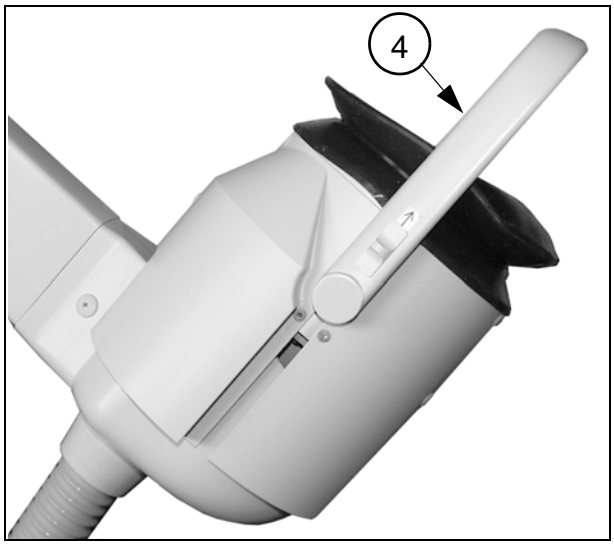

Fig. 2

ARCADIS Orbic / SIREMOBIL Iso-C and monitor trolley

Refer to the following documents when installing the SIREMOBIL and the monitor trolley:

ARCADIS Orbic:	SPR2-320.812.02	Monitor Trolley:	SPR2-310.812.02
SIREMOBIL Iso-C:	SPR2-230.031.02	Monitor Trolley:	SPR2-230.031.01

MODULARIS Uro

Refer to the following document when installing the MODULARIS Uro:

MODULARIS Uro: SPL1-130.033.02

LITHOSTAR MODULARIS

NOTICE	**<u>Do not</u> pull on the latch (4/Fig. 2). It is <u>not</u> a handle!**
NOTE	**If the LITHOSTAR MODULARIS is being updated, you must also follow the procedure described in chapter 4 of this document.**

- Remove the packaging above the unit.
- Loosen the transport safety screw (1/Fig. 1) for securing the unit and the ramp (2/Fig. 1).
- Unscrew all transport safety hooks (3/Fig. 1).

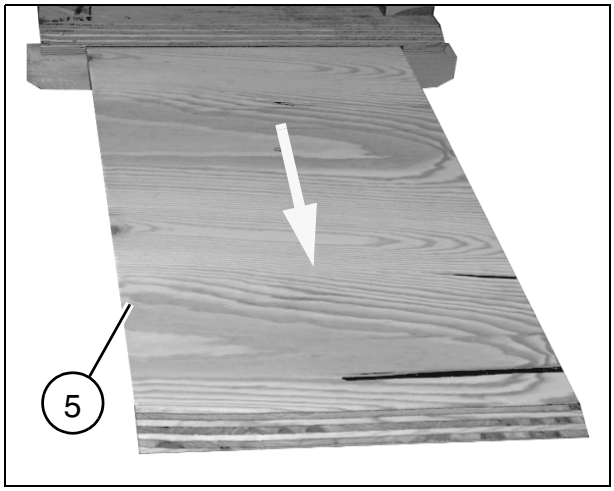

Fig. 3

- Pull the ramp out of the transport pallet (5/Fig. 3) from back to front and adjust it to fit correctly.
- Move the unit off the transport pallet and down the ramp.
- Adapt the power cord to the country-specific requirements, if required. If necessary, materials will have to be purchased locally. Use a hospital grade plug for the USA and for Canada.
- Secure the operating panel bracket with the screws.
- Connect the operating panel.

SONOLINE

The SONOLINE does not require any special installation instructions.

All you need to do is unpack the unit following the "Unpacking procedure" attached to the outside and attach the accessories including the monitor.

MUT MODULARIS

This system will be started up by the corresponding supplier.

Fig. 4

Fig. 5

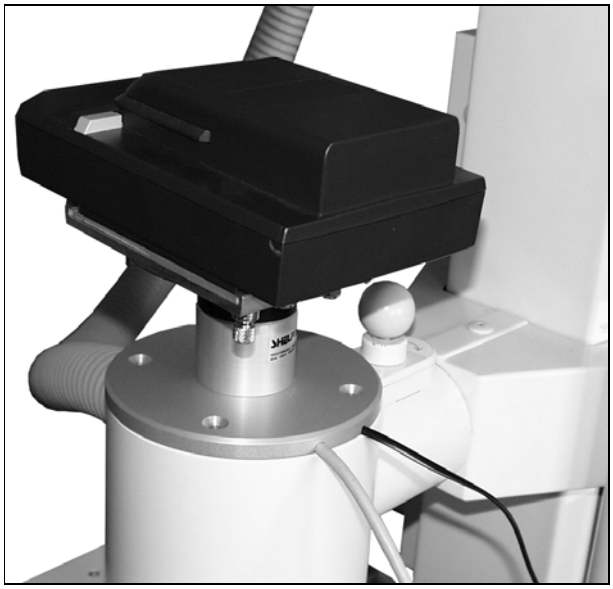

Fig. 6

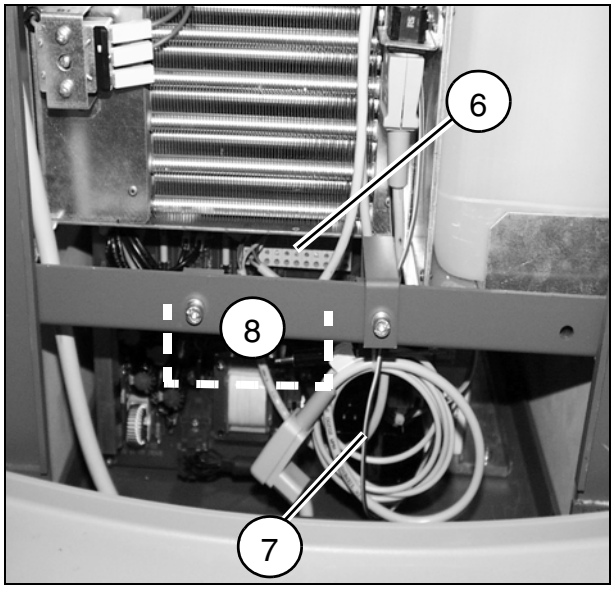

Fig. 7

ECG triggering option

Mounting the docking station

- Unscrew the rectangular plate (Fig. 4) from the ECG-Monitor docking station. It is no longer required.
- Screw the docking station bracket from the conversion kit onto the round plate so that the longitudinal grooves are visible from below (Fig. 5).
- Remove the round cap from the column of the system trolley. It is no longer required.
- Remove the cover from the system trolley.
- Loosen the wires at the bracket (7/Fig. 7).
- Connect the cooling unit plug (power cord) to the connecting block (6/Fig. 7).
- Push the trigger cable from the D3.X70 board (beside the service switch) starting with the jack plug, from beneath, through the column and lead it out, parallel to the wires, with the network.
- Insert the cold unit plug into the ECG-Monitor power unit.
- Fix the ECG-Monitor power unit in the system trolley onto the bracket (8/Fig. 7) with the cable tie.
- Push the 24 V cable of the power unit through the column from below and route it as for the trigger cable.
- Fix both cables, using a cable clamp for each from the conversion kit, onto the mounting plate so that a length of around 35 cm is available outside the column.
- Screw the plate firmly onto the column so that the cables emerge from the grooved tube opposite each other, as shown in Fig. 6.
- Connect the Service PC.
- Select the ECG function according to the service instructions.

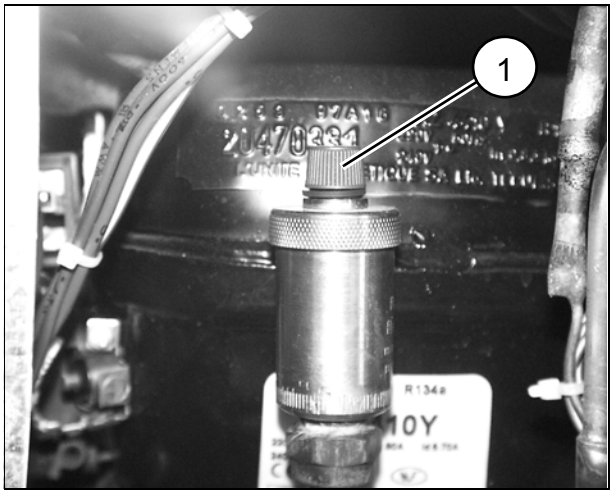

Fig. 1

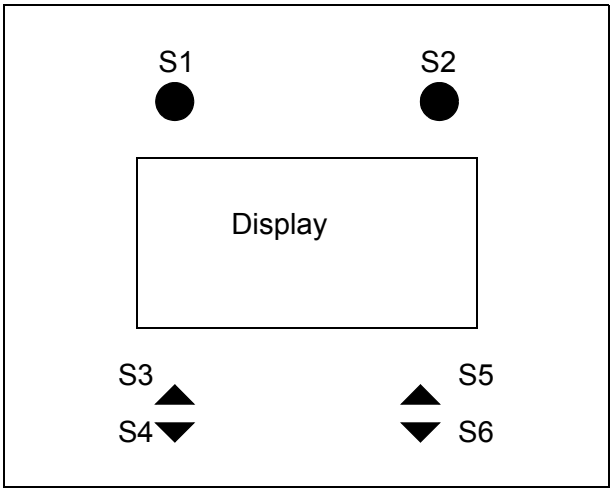

Fig. 2

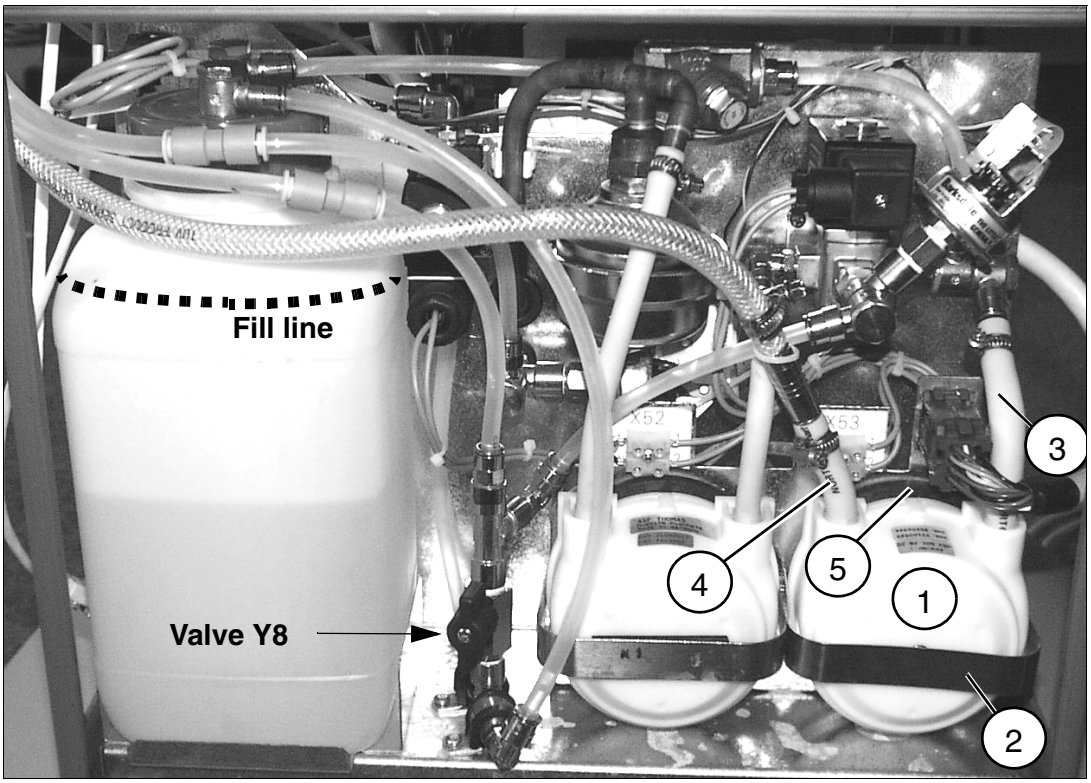

Fig. 3

LITHOSTAR MODULARIS

Checking the line voltage

- Measure the line voltage at the receptacle.
- Compare the line voltage measured with the value in the test certificate. The voltage can be converted; the jumper is located on the transformer in the LITHOSTAR MODULARIS.

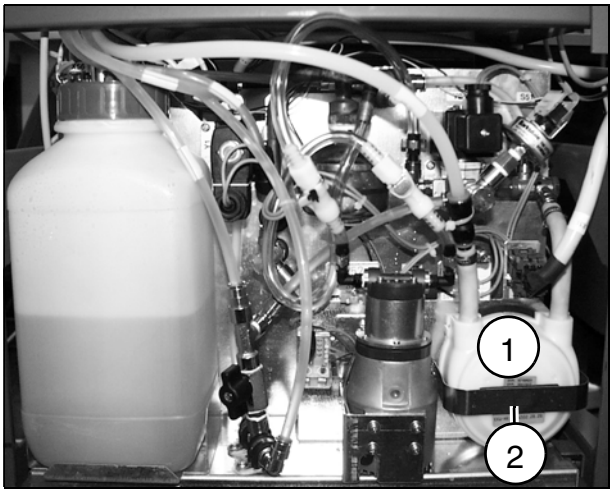

Fig. 4

Install coupling pump

- The coupling pump is located under the water reserve tank in front of the power supply board.
- Place the hose pump head on the drive shaft (1/Fig. 3/4).
- Press the black latching mechanism (5/Fig. 3) up or down.
- Install the safety stirrup (2/Fig. 3/4).
- Connect the hoses (3/4/Fig. 3).

Filling the cooling circuit

- Remove the system covers.
- Remove the water reserve tank.
- Fill it with distilled water up to the fill line (Fig. 3).
- Reinstall the water reserve tank.
- Switch the system on.
- Move the support arm into the horizontal position.
- Turn the ventilation valve (cap) in the cooling unit two revolutions (1/Fig. 1) to open it. (The valve must always remain open).
- Adjust service switch S2 on board D3 to position 2 (Service on).
- Open valve Y8 (Fig. 3); i.e. turn the lever on Y8 from the horizontal position = closed to the vertical position = open.
- Select "Service" and then "cooling unit" on the control panel.
- Activate the "fill" switch (S5/Fig. 2) on the operating panel until the water running out of the return (Fig. 3) into the water reserve tank is free of air bubbles.
  (Hose pump M1 will run for as long as this takes, V188 on board D3 lights.)
- Close valve Y8 (Fig. 3); i.e. turn the lever on Y8 from the vertical position = open to the horizontal position = closed.

Filling the coupling circuit

- Select "service" and then "coupling circuit" on the operating panel.
- Activate the "fill" switch (S5/Fig. 2) on the operating panel until the coupling bellow expands.
- Adjust service switch S2 on board D3 to position 1 (service off).
- Select "rinse" on the operating panel and activate the cycle. This will automatically end the filling process.
  - If you still see air bubbles in the coupling bellow, start the fill cycle again.
- Adjust service switch S2 on board D3 to position 2 (service on).
- First select "service" and then "coupling circuit" on the operating panel.
- Activate the "empty" button (S6/Fig. 2) on the operating panel until the coupling bellow is located next to the lens.
- Switch the system off.
- Fill the water reserve tank up to the fill line (Fig. 3) with distilled water.
- Adjust service switch S2 on board D3 to position 1 (service off).
- Switch the system on. The "rinse" cycle will be automatically activated and the coupling bellow will fill.
- Switch the system off.
- Remove the shock head covers and test all sealed transitions for tightness.
  Visual inspection of the inlets and outlets, pressure and temperature sensor, coupling bellows.
- Reattach the system covers.

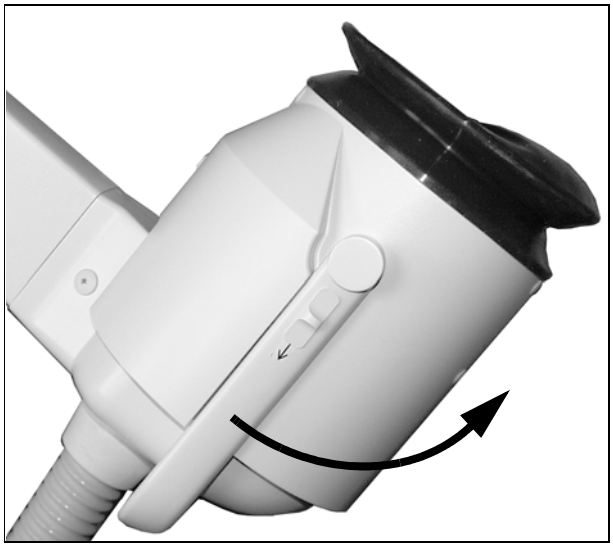

Fig. 5

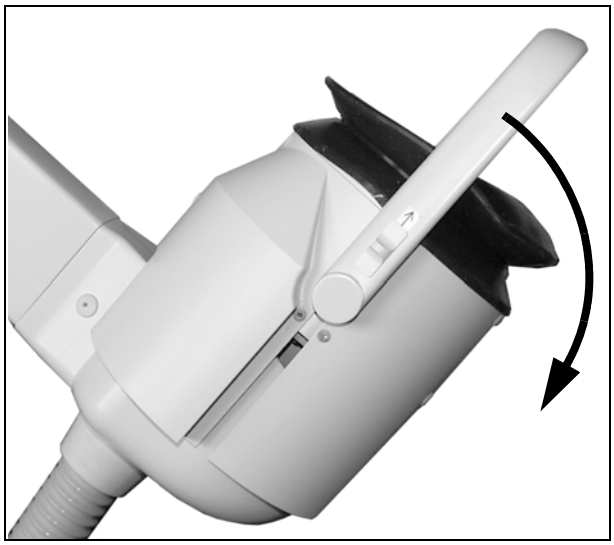

Fig. 6

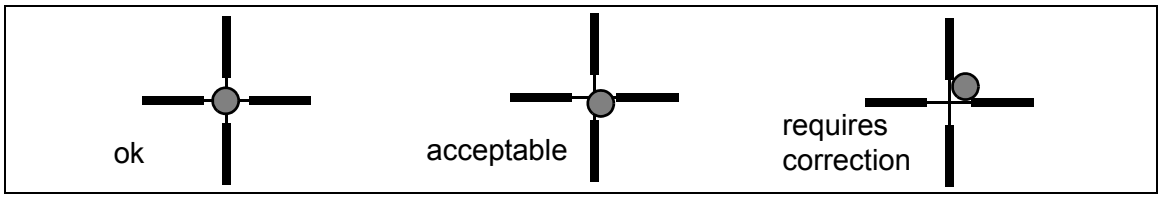

Fig. 7

Checking the isocenter with X-ray

NOTICE	**If the LITHOSTAR MODULARIS is adjusted for "LithoShare", the isocenter must be checked with each SIREMOBIL Iso-C.**

NOTE	**The limit switch for vertical lift on the SIREMOBIL Iso-C may not switch off if the floor is not level. If this is the case, make use of the additional steering castors.**

- Before the isocenter is checked or adjusted, the following settings are required on the SIREMOBIL Iso-C:
  1. Set camera rotation to 0°.
  2. Deselect vertical image flip (LED is off).
  3. Deselect horizontal image flip (LED is off).
- Couple the LITHOSTAR MODULARIS to the SIREMOBIL Iso-C.
  - Connect the cables between the LITHOSTAR MODULARIS and SIREMOBIL Iso-C or Uro MODULARIS (refer to the Operating Instructions).
- Ensure that the lifting column of the SIREMOBIL cannot move.
  If the lifting column can still be moved, proceed according to the service instructions for LITHOSTAR MODULARIS.
- Flip up the isocenter phantom on the shock wave head (Fig. 5).

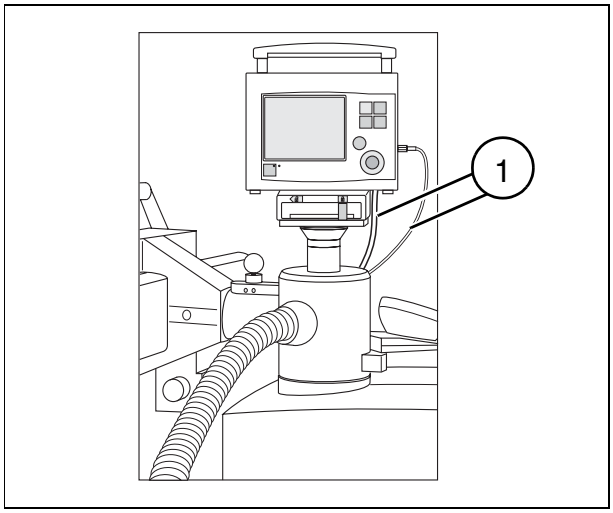

Fig. 8

- Switch FL on and check the isocenter at 0°, +20° and -20°.
  For the admissible position of the ball, see Fig. 7. The ball position at +20° and -20° does not have to be identical, but does have to be within tolerances.
  - If the centering needs to be readjusted, correct in accordance with the LITHOSTAR MODULARIS Service Instructions, "Isocenter with X-ray" chapter.
- Flip the isocenter phantom back on the shock wave head (Fig. 6).

Shock wave release

- Pump water into the coupling bellows.
- Spread some contact gel on the coupling bellows to protect the coupling bellows (by placing the contact gel on the coupling bellows, it is not damaged as much when a shock wave is triggered without a patient).
- Increase the shock wave energy in steps from the lowest energy level to the highest energy level and release additional shock waves at every energy level.

Shock wave release with ECG (optional)

- Mount the ECG-Monitor as described in the Operating Instructions to the docking station (Fig. 8).
- Connect both the cables (1/Fig. 8) to the ECG-Monitor.
- Connect the ECG electrodes to a test subject or connect the ECG simulator to the ECG-Monitor unit.
- Select ECG triggering on the LITHOSTAR MODULARIS operating panel.
- Spread some coupling gel on the coupling bellow to protect it.
- Increase the shock wave energy in steps from the lowest energy level to the highest energy level and release additional shock waves at every energy level.

Pressure measurement

A pressure measurement must be performed after commissioning. The following document is necessary for pressure measurement:

Shock Wave Pressure and Pos. Control: SPL2-120.074.01

ARCADIS Orbic / SIREMOBIL Iso-C and monitor trolley

The following documents are required to start-up the SIREMOBIL and monitor trolley:

ARCADIS Orbic	SPR2-320.815.02
SIREMOBIL Iso-C:	SPR2-230.034.01

MODULARIS Uro

The following documents are required to start-up the MODULARIS Uro:

MODULARIS Uro: SPL1-130.033.02

NOTICE **The table is only capable of motorized movement when it is in the working position, i.e. when the foot pedal is down (refer also to the MODULARIS Uro Operating Instructions).**

- Start-up the table according to the instructions SPL1-130.033.02.. .
- Connect the cables between the LITHOSTAR MODULARIS and the MODULARIS.
- Move the table into Litho mode and check the table movements with the LITHOSTAR MODULARIS remote control.
  The following motorized movements are possible from the LITHOSTAR MODULARIS control panel:

C-Arm	MODULARIS Uro
C-Arm 0°	Longitudinal and transverse
C-Arm 20°	Lift and transverse

Table movement in the Litho mode (green LED on the table control panel goes on) e.g. key for longitudinal movement pressed.

Table movement approx. 2 - 3 mm - stops for approx. 2 - 3 seconds - and then moves on without pausing.

Ultrasound localization (if present)

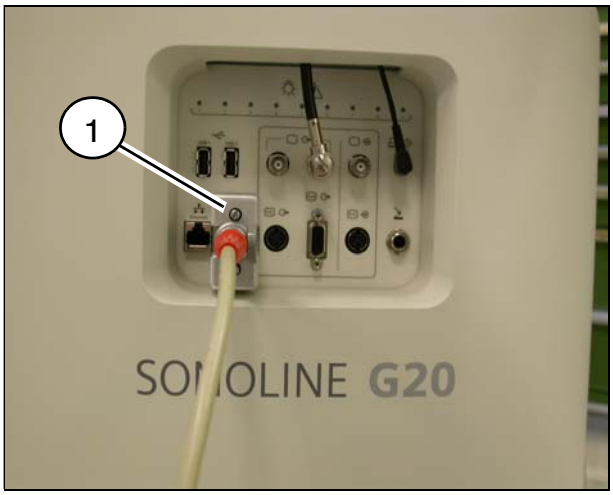

Fig. 9

Fig. 10

SONOLINE G20

- Screw the plug adapter (1/Fig. 9) onto the serial interface.
- Install the software version V1.0.302 - or higher - in the SONOLINE G20 (see SONOLINE G20 operating instructions, Chapter 4).
- Enable the ultrasound localization (Chapter 3 of this document "Selection of the MODULARIS cross.....).

SONOLINE Adara

- Screw the plug adapter (1/Fig. 10) onto the serial interface.
- Install the software version 2.0.0 in the SONOLINE Adara (see SONOLINE Adara operating instructions, section 7-19).
  - Only for an existing SONOLINE Adara:
    Before the new software V.2.0.0is installed, back up the "defaults" and "quick sets" (see SONOLINE Adara operating instructions, section 7-15...).
    After the software is installed, load the saved presets back in the ultrasound unit (see SONOLINE Adara operating instructions, section 7-17).
- Enable the ultrasound localization (Chapter 3 of this document "Selection of the MODULARIS cross.....).

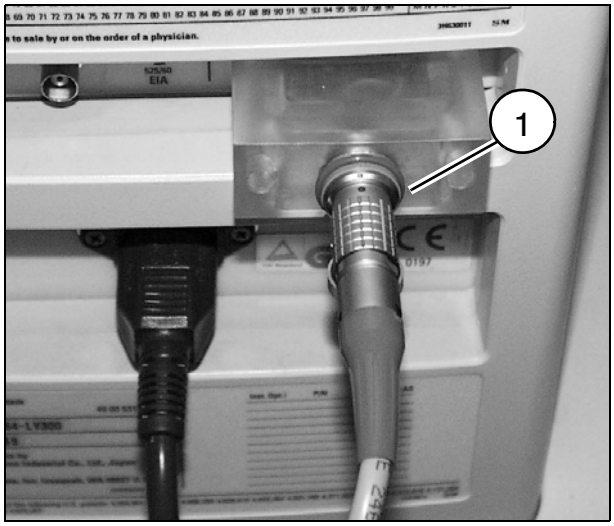

Fig. 11

SONOLINE Prima

- Screw on the plug adapter (1/Fig. 11).
- Install the software version 2.8.0 in the SONOLINE Prima (see SONOLINE Prima operating instructions, section 8-22).
  - Only for an existing SONOLINE Prima:
    Before the new software V.2.0.0is installed, back up the "user presets" and "quick sets" (see SONOLINE Prima operating instructions, section 8-16...).
    After the software is installed, load the saved presets back in the ultrasound unit (see SONOLINE Prima operating instructions).
- Enable the ultrasound localization (Chapter 3 of this document "Selection of the MODULARIS cross.....).

Probes

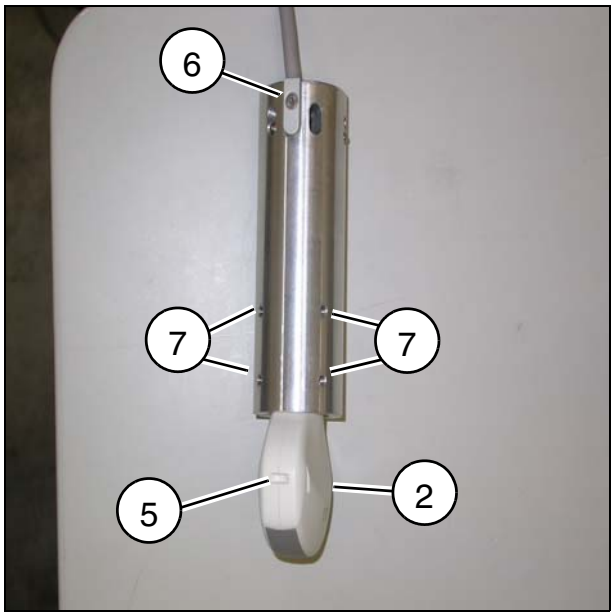

Fig. 12

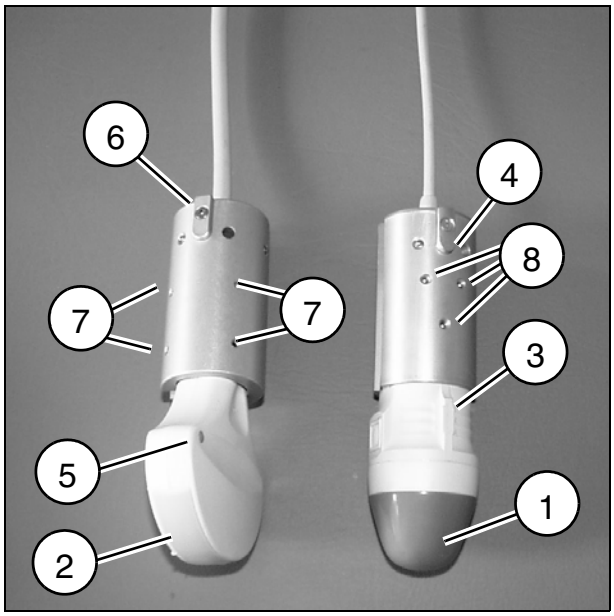

Fig. 13

Sector probe

- Unscrew all grub screws so far that they do not obstruct the introduction of the probe.
- Push the sleeve as far as possible on the sector probe (1/Fig. 13). Pay attention to correct position, the marks (3/Fig. 13) and (4/Fig. 13) must be in a line.
- Tighten the 6 screws (3 not visible) (8/Fig. 13).
- Check the ultrasound isocenter (see Chapter 6 of this document).

Array probe

- Unscrew all grub screws so far that they do not obstruct the introduction of the probe.
- Push the sleeve as far as possible on the array probe (2/Fig. 12/13).
  Pay attention to correct position, the narrow side with the orange dot (5/Fig. 12/13) must be in a line(6/Fig. 12/13).
- Tighten the 8 grub screws (7/Fig. 12/13) (4 not visible).
- Check the ultrasound isocenter (see Chapter 6 of this document).

Selection of the MODULARIS cross on the SONOLINE G20

Ultrasound localization

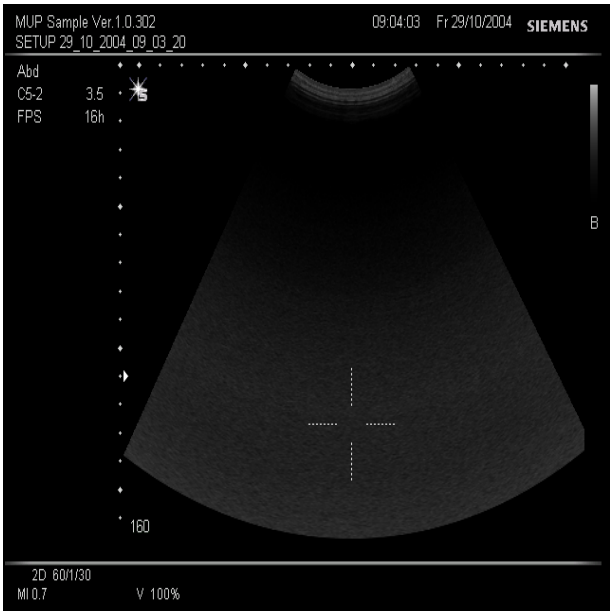

Fig. 14

- In ultrasound localization a holder in which an ultrasound probe can be fastened is fitted to the shock wave head.

Only the following probes can be used:

C5-2 Convex Array 3.5 MHz

- Press the “F6” key.
- Select the MUP with the trackball.
- Press the ⊕ key.
- Enter the password.
- With the trackball select "Litho mode without X-ray".
- With the trackball select Save.
- Press the ⊕ key.
- Deselect the screen saver on the SONOLINE G20 (refer to the SONOLINE G20 operating instructions).
- A cross (Fig. 14) is displayed when a probe is selected.

Selection of the MODULARIS cross on the SONOLINE Adara

Ultrasound localization

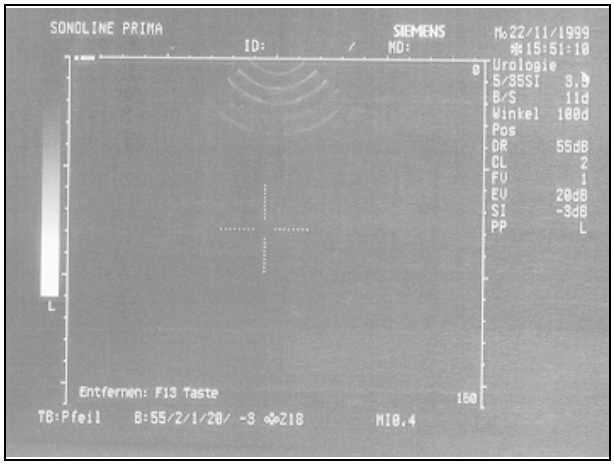

Fig. 15

- In ultrasound localization a holder in which an ultrasound probe can be fastened is fitted to the shock wave head.

Only the following probes can be used:

3.5C40S convex array 3.5 MHz

3.5/5.0 SI sector probe

- Press the “F4” key.
- Press the "5" key.
- Select the MUP with the trackball.
- Press the ⊕ key.
- Enter the password.
- Select "Litho mode without X-ray" with the trackball.
- Press the ⊕ key.
- Select "Litho mode without X-ray" with the trackball.
- Press the ⊕ key.
- Press the ↰ key two times.
- Deselect the screen saver on the SONOLINE Adara (refer to the SONOLINE Adara operating instructions).
- A cross (Fig. 15) is displayed when a probe is selected.

Selection of the MODULARIS cross on the SONOLINE Prima

Ultrasound localization

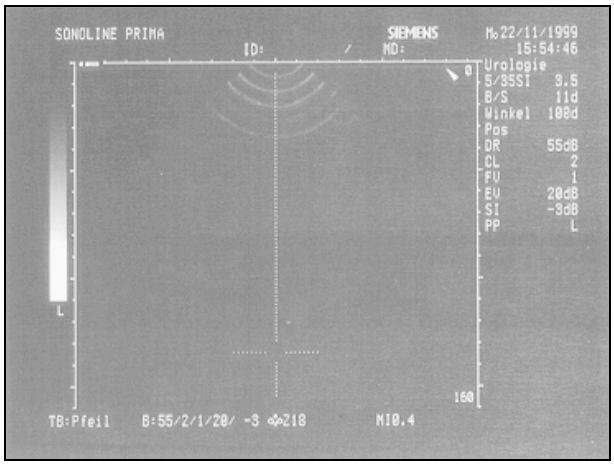

Fig. 16

- In ultrasound localization a holder in which an ultrasound probe can be fastened is fitted to the shock wave head.

Only the following probes can be used:

3.5C40S convex array 3.5 MHz

3.5/5.0 SI sector probe

- Press the “F4” key.
- Press the "5" key.
- Select the MUP with the trackball.
- Press the key.
- Enter the password.
- Select "Litho Mode no X-ray" with the trackball.
- Press the key.
- Activate "Litho Mode no X-ray" with the trackball.
- Press the key.
- Press the key two times.
- Deselect the screen saver on the SONOLINE Adara (refer to the SONOLINE Adara operating instructions).
- When a or probe is selected, the following cross (Fig. 16) is displayed.

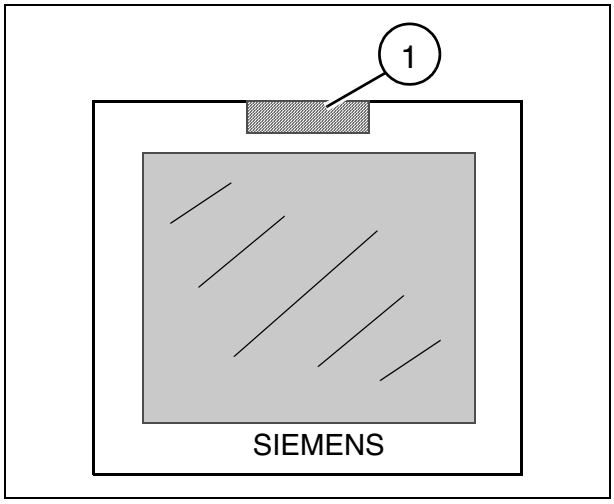

Fig. 17

Label for ultrasound unit

- Affix the supplied "LITHOSTAR MODULARIS" label to the monitor of the ultrasound unit (1/Fig. 17) (this label serves for identifying which ultrasound unit operates together with the LITHOSTAR MODULARIS).

MUT MODULARIS

The endoscopy trolley is started up by the manufacturer.

Concluding work

Refer to the "Concluding work" chapter.

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Installing the LITHOSTAR Modularis adaption in ARCADIS Orbic

- The installation of the LITHOSTAR Modularis adaption in the ARCADIS Orbic must be performed according to the instructions SPR2-320.814.04....

Installing the interface wiring in the SIREMOBIL Iso-C

- Move the lifting column of the SIREMOBIL Iso-C into the top position.
- Remove the rear panel of the SIREMOBIL Iso-C basic unit.
- Screw on the drilling template as shown in Fig. 1.

Fig. 1

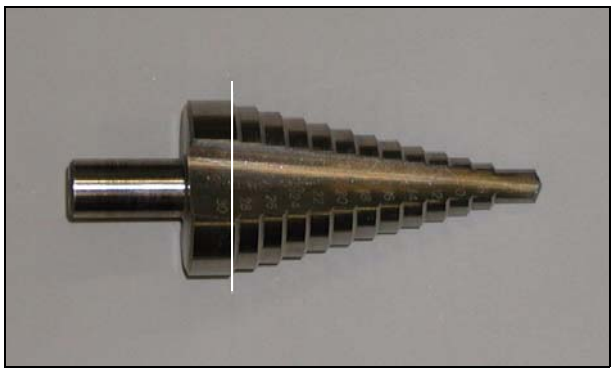

Fig. 2

- To prevent drill shavings from melting into the surface, place a cloth or thin cardboard over the cover (Fig. 1).
- Inside, also place a cloth or thin cardboard underneath the intended holes.
- With the 3.5 mm drill supplied, drill 3 holes using the holes of the template as a reference.
- Remove the drilling template.
- Using the step drill supplied, open the center hole to 28 mm.
- To do this, drill open the hole until the step drill penetrates the plate down to the mark shown in Fig. 2 (approx. 0.5 mm from the largest drill diameter of 30 mm).
- Drill slowly! (approx. 300 to 500 rpm).

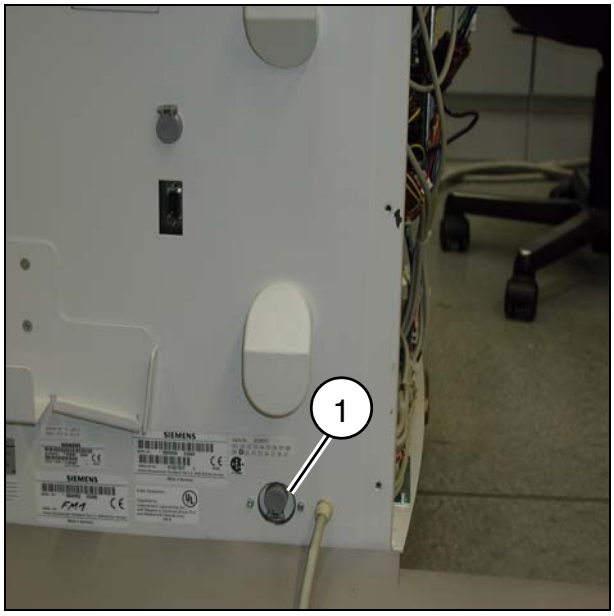

Fig. 3

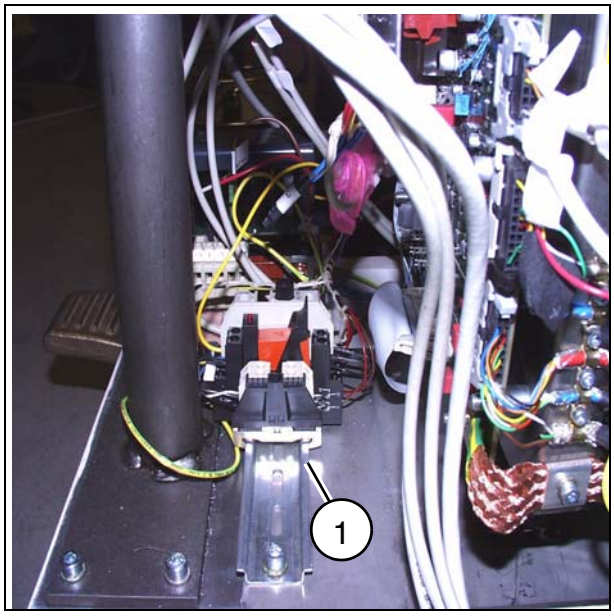

Fig. 4

- When drilling, ensure that the drill is placed vertically against the plate.
- Due to the step length of the drill, a small 26 mm diameter bridge remains on the inner edge of the hole. Remove this bridge with a half-round file. The diameter drilled shall be 28 mm across the entire plate thickness. Use the file to remove the burr as well.
- Also deburr the two 3.5 mm holes. This can be done with a drill having a diameter of approx. 8 mm to 10 mm. Place the drill manually against the 3.5 mm holes from the inside and break the burr.
- Remove all drill shavings outside and inside with a vacuum cleaner.
- Varnish the 28 mm hole with a varnish applicator and allow it to dry.
- Position the connector with holding plate from the inside.
- The connector is positioned centrally to the 28 mm hole, the lid opens downward.
- Fasten the connector with holding plate using the screws and lock washers supplied (1/Fig. 3).
- Route the cables along the guide plate (1/Fig. 5).

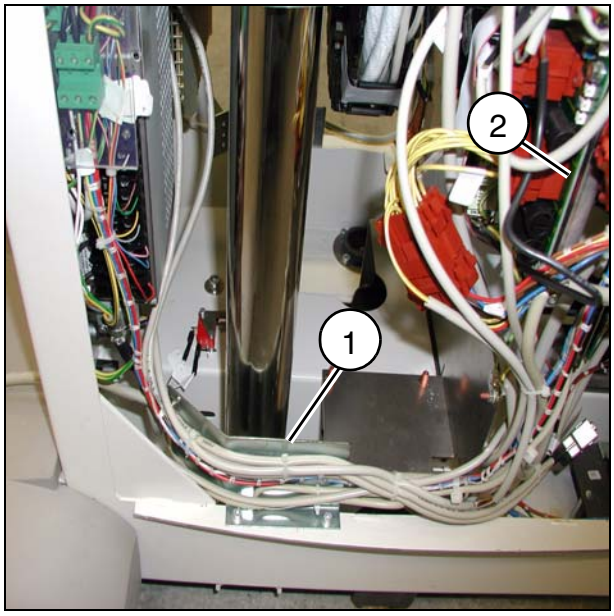

Fig. 5

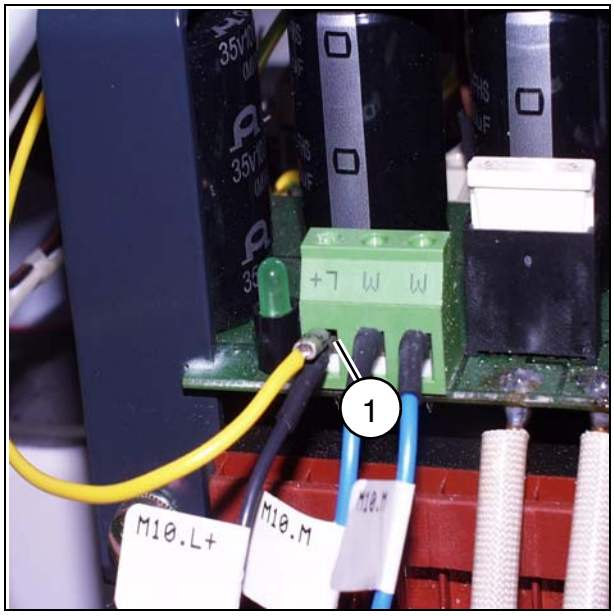

Fig. 6

Without SIREMOBIL Iso-C 3D option:

- Run the cable end with the designation X11 to D30 (2/Fig. 5) and connect it to the connector D30.X11 and lock it. Refer to the wiring diagram for the position of the connector D30.X11.

With SIREMOBIL Iso-C 3D option:

- Disconnect at both ends and remove the existing ribbon cable from D30.X11 to D200.X211. The ribbon cable is no longer required. Refer to the wiring diagrams for the position of the connectors D30.X11 and D200.X211.
- Fasten the top hat rail (1/Fig. 4) at the place shown in (Fig. 4). For this purpose loosen the existing screws and fasten the top hat rail with these.
- Run the cable end with the designation X11 to D30 (2/Fig. 5) and connect it to the connector D30.X11 and lock it.
- Fasten the single lead to the terminal M10.L+ (1/Fig. 6).

Without SIREMOBIL Iso-C 3D option:

- The cable end with the designation X211 is not used. Fasten the cable end securely with cable ties.

With SIREMOBIL Iso-C 3D option:

- Run the cable end with the designation X211 to the board D200 and connect it to the connector D200.X211.

- Using the cable ties supplied, fasten the cables along the existing cables. Ensure that the cables cannot be pinched when the covers are closed and the lifting column is moved.

NOTE

The "Appendix" contains the wiring diagram excerpt for the cable in Fig. 3. Please take the wiring diagram excerpt out of this document and file it with the wiring diagram of the SIREMOBIL Iso-C (SIREMOBIL Iso-C system binder).

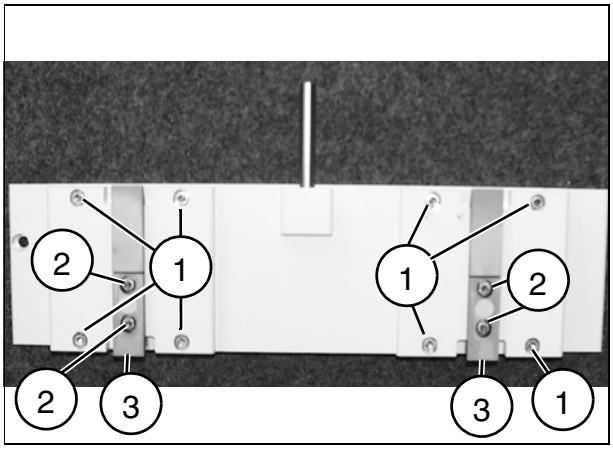

Fig. 7

Mounting the docking plate on the ARCADIS Orbic / SIREMOBIL Iso-C

LITHOSTAR MODULARIS with support arm beginning with 0051/ or with "LithoShare"

- Remove the cap plugs on the horizontal carriage.
- Disassemble the two-part docking plate by removing the eight screws (1/Fig. 7).
- Attach the docking plate on the horizontal carriage by tightening the screws to a torque of 18 Nm (Fig. 9). The docking plate must be down on the threads of the mounting screws.
- Adjusting the clamping force:
  The adjustment steps must be performed evenly and parallel on both hooks.
  - Loosen both clamping screws (2/Fig. 7) so that it is possible to move the hooks, however, the hooks may not slide down under their own weight.
  - Turn the hooks (3/Fig.7) all the way up.
  - Hook the part of the docking plate that was removed onto the LITHOSTAR MODULARIS and close the latching lever.
  - Using the adjustment screw (3/Fig.7), turn down the hook with a torque of 2.3 + 0.3 Nm.
  - Remove the plate on the LITHOSTAR MODULARIS.
  - Tighten the screws (2/Fig. 7) with a torque of 10 Nm.
  - Place the cover caps over the screws (2/Fig. 7).

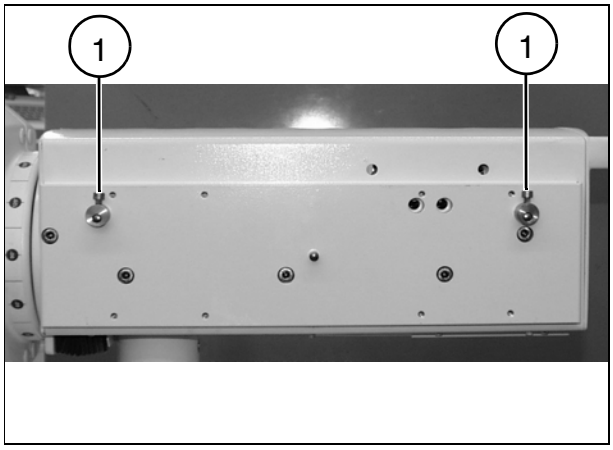

Fig. 8

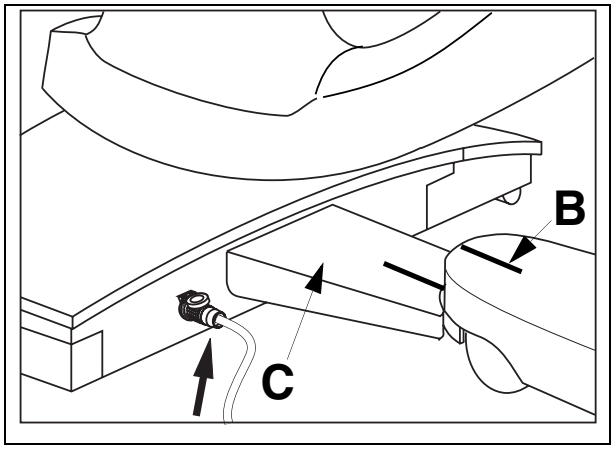

Fig. 9

- Reinstall the part of the docking plate that was removed on the C-arm.
  It must still be possible to move it using the adjustment screws (1/Fig. 8).
  When fitting the plate, make sure that the switches in the C-arm do not get damaged.

Attaching the alignment marker to the ARCADIS Orbic / SIREMOBIL Iso-C

- Attach the alignment marker in the center of the C-arm foot (B/Fig. 9).
  The marker is included with the alignment fixture in the system delivery volume (C/Fig. 9).

Fig. 10

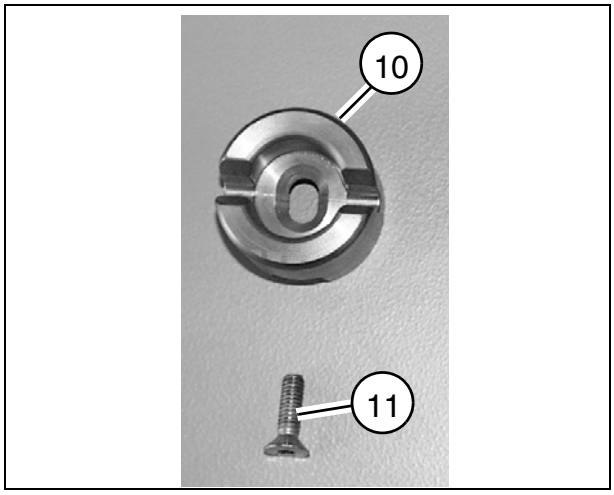

Fig. 11

Attaching the marker on the C-arm

- Position the C-arm in the vertical position with the aid of a spirit level (Place the water level on the I.I.).
- Attach (20/Fig. 15) the arrow marker.

Mounting the coupling

Not "LithoShare"

- If not present
  - Drill a hole, 5 mm in diameter and 20 mm deep in the shaft of the C-arm (9/Fig. 10).
  - Cut M6 threads in the hole to a minimum depth of 16 mm.
- Place the item shown in (10/Fig. 11) in the center of the shaft and attach it with the screw (11/Fig. 11) and Loctite 221.
- Remove both parts of the cover from the motor.
- The angulation motor should be easy to remove from the axis of the C-arm; if not, proceed according to the LITHOSTAR MODULARIS Service Instructions, SPL1-130.061.01.

With "LithoShare"

- With a C-arm, install the coupling as described under "Not LithoShare".
- With all other Siremobil systems, as described below:
  - Prerequisite: Motor is perfectly adjusted.
  - Push coupling (10/Fig. 11) on to the motor coupling.
  - Couple the motor with the coupling to the SIREMOBIL Iso-C.
  - Just hold the coupling and bring the motor back into the parking position (do not displace the coupling).
  - Attach the coupling with the screw (11/Fig. 11) and Loctite 221.

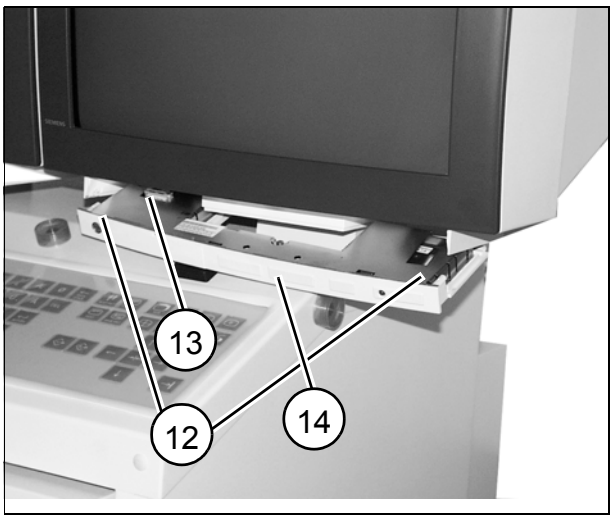

Fig. 12

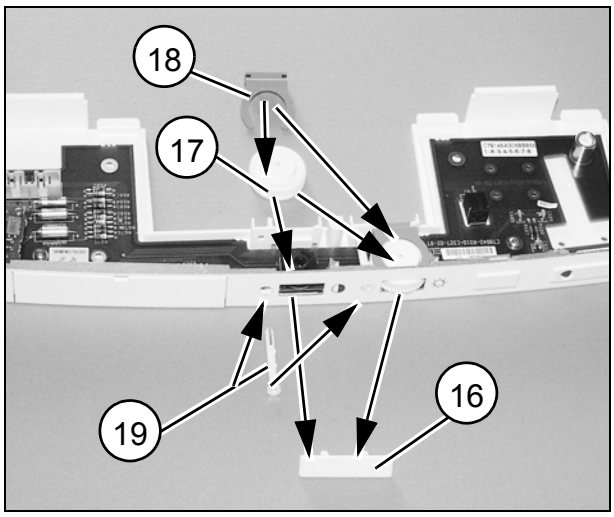

Fig. 13

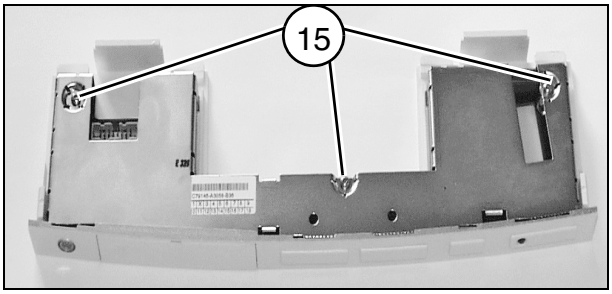

Fig. 14

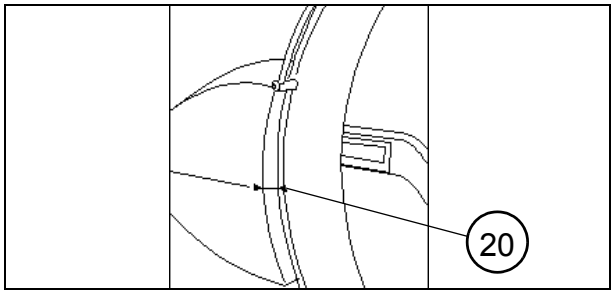

Fig. 15

Installing the controls in the monitors, item no. 11 02 628

- Remove the regulator unit (14/Fig. 12) from the monitor by unlocking both snap-in locks (12/Fig. 12) and swiveling the unit downward. Disconnect the plug (13/Fig. 12) and remove the unit.
- Remove the screws and the cover plate (15/Fig. 14).
- Press and remove the cover caps (16/Fig. 13).
- Rotate the potentiometers clockwise to the end stop.
- Install the knobs (17/Fig. 13) on the potentiometers; the markers (single line) on the knobs must be centered in the panel cutout.
- Snap on the top holder (18/Fig. 13) to secure the knobs.
- Insert the stop pins (19/Fig. 13) into the holes (slot must be vertical).
- Reinstall the covers.
- Install the regulator unit in the monitor.
- If there is a second monitor, perform the installation described above on the second monitor as well.

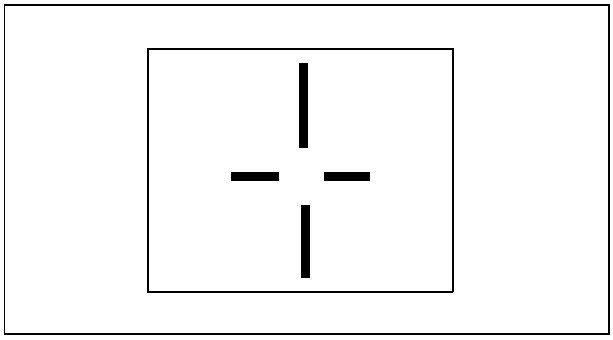

Fig. 16

Fig. 17

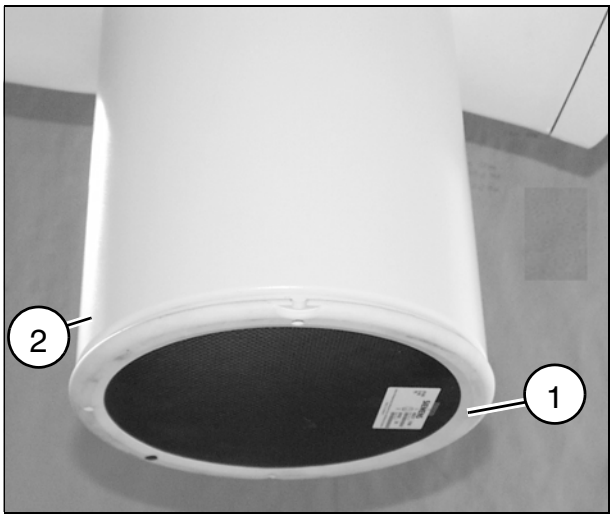

Fig. 18

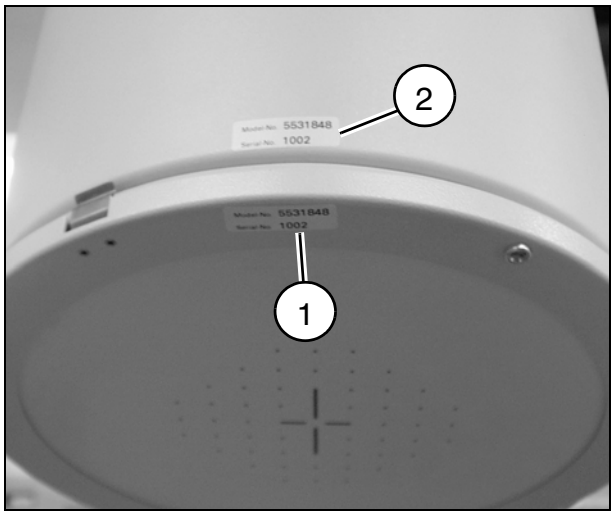

Fig. 19

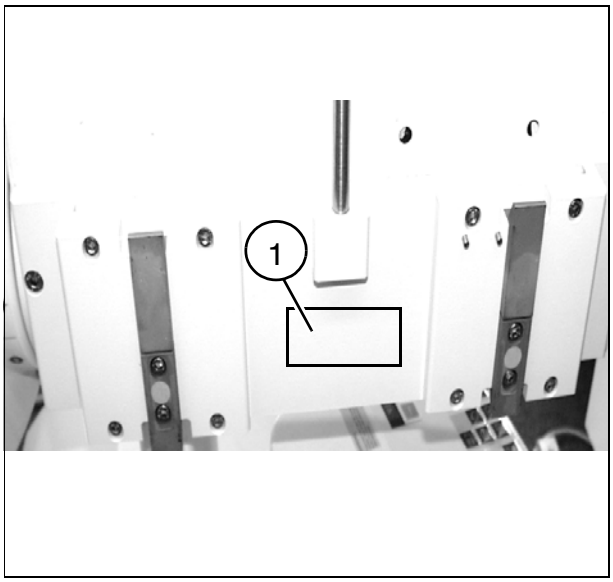

Fig. 20

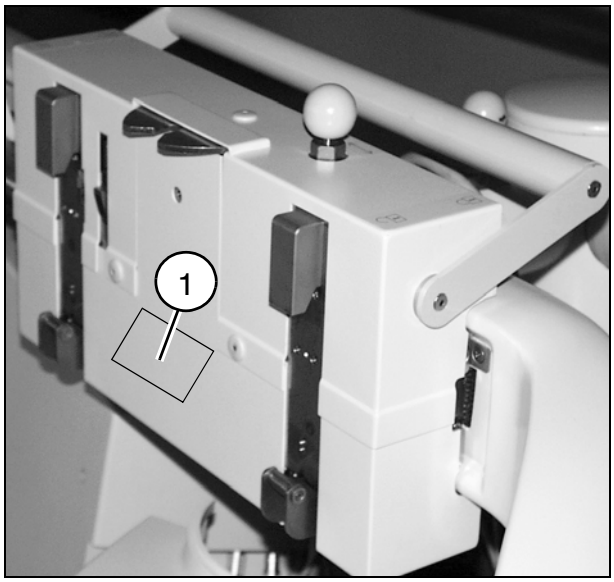

Fig. 21

Installing the isocenter crosshairs on the C-Arm

LITHOSTAR MODULARIS with support arm Ser. No. 0051 or with "LithoShare"

- Remove the front screw on the I.I. and replace it with the M4 x 16 screw included in the shipment (1/Fig. 18).
- Snap the isocenter cross onto the I.I.
- Attach the arrows (Fig. 17) (indicators for the centering stud).
- Attach the Serial No. label included in the shipment on the isocenter cross (1/Fig. 19) and place it on the back of the I.I. (2/Fig. 18/19).

Unit assignment

- Attach the supplied label "LITHOSTAR MODULARIS" to the docking plate (1/Fig. 20) and to the LITHOSTAR MODULARIS (1/Fig. 21) and add LITHOSTAR MODULARIS serial number.

Checking the decoupling of the angulation drive

- If the error messages E24 and E28 appear when swiveling the C-arm, the cause for these messages can be that the angulation brake in the SIREMOBIL is set too firmly.
- Setting of the angulation brake in the C-arm (angulation and orbital in 0°). LITHOSTAR MODULARIS not coupled. Fit the spring balance on the handle near the X-ray I.I. Release the angulation brake, pull with the spring balance; the C-arm must move when the spring balance indicates a value from 20N, 30N, the closer to 20N the better. Adjustable at the location where the angulation motor is coupled. Wrench opening 30 mm. The coupling must be removed for this. See also SPR2-230.061.01... Chapter 7.
- Move the C-arm to the 0° position.
- Couple the LITHOSTAR MODULARIS to the C-arm.
  - Connect the cables between the LITHOSTAR MODULARIS and SIREMOBIL Iso-C (refer to the Operating Instructions).
- The angulation motor should be easy to remove from the axis of the C-arm; if not, proceed according to the LITHOSTAR MODULARIS Service Instructions, SPL1-130.061.01.

Isocenter

- Proceed according to the LITHOSTAR MODULARIS Service Instructions SPL1-130.061.01 ("Isocenter with X-ray" chapter).

Water system

- Proceed according to chapter 3 of these instructions, LITHOSTAR MODULARIS SPL1-130.061.01 section.

MEMOSKOP programming for lithotripsy operation

- Proceed according to the LITHOSTAR MODULARIS Service Instructions SPL1-130.061.01.

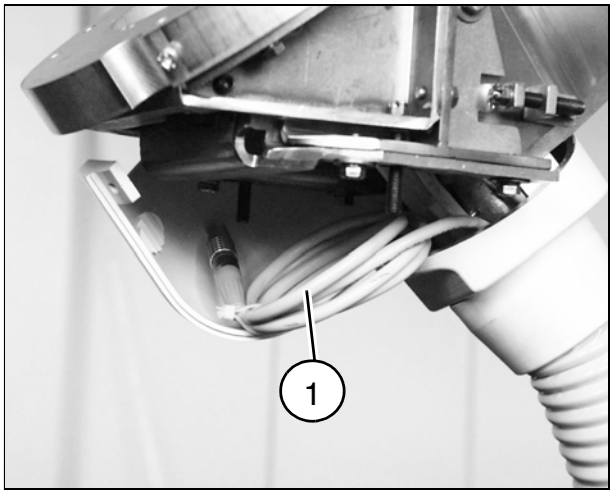

Fig. 1

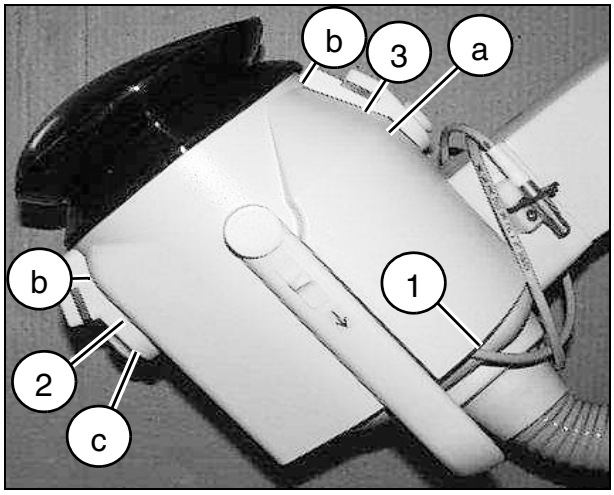

Fig. 2

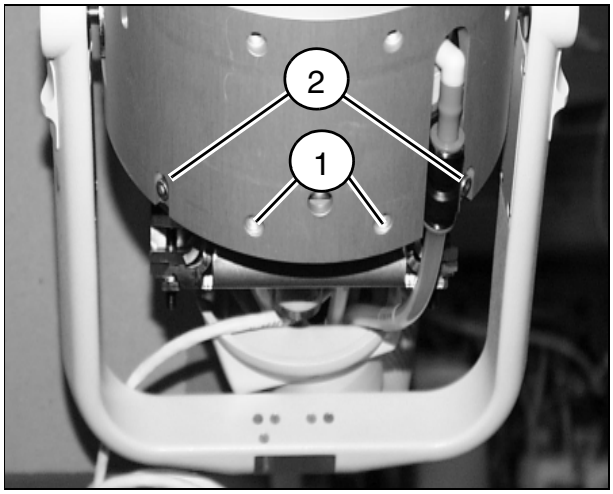

Fig. 3

NOTE

For systems with a serial no. including 01017:
The modification SP005/99R (software and new cable) must have been performed.
For systems with a serial no. including 01024:
An isocenter phantom with a serial no. must be fitted.

- Remove the cover from the trolley.
- Remove each of the 4 covers from the installation openings for parts (2 and 3/Fig. 2).
- Check that the lower installation openings for part (3/Fig. 2) are accessible.
  If not, mark them on the cover.
- Remove the shock wave head cover and take out the cable (1/Fig. 1).
- Check that connector X28 is connected to board D3; if it is not, then connect it. Pull the entire excess length of this cable to the shock wave head if not yet done.
- If necessary, deepen the installation opening on the cover for part (3/Fig. 2) by filing.

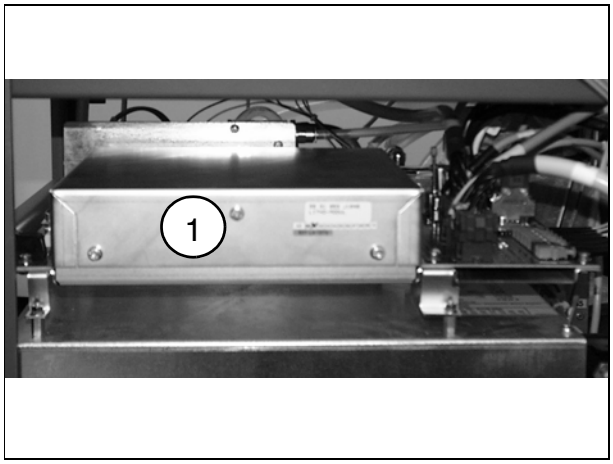

Fig. 4

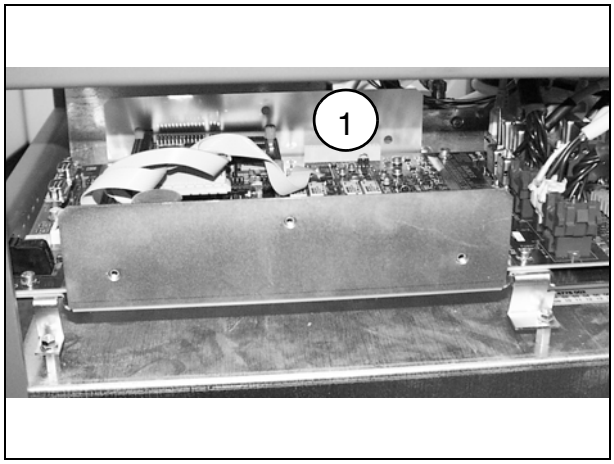

Fig. 5

- Only for systems with a serial no. including 01024:
  - Mark the two openings (1/Fig. 3) on the retaining section of the isocenter phantom.
  - Loosen the 4 safety screws (2/Fig. 3) on the isocenter phantom.
  - Remove the isocenter phantom.
  - Drill holes in the marked positions:
    pilot-drill to 4 mm
    drill to 8 mm and debur
    the depth of the hole must be 10 - 15 mm.
  - Replace the isocenter phantom and screw down.
- Replace the cover and route the cable (1/Fig. 2) out of the cover.
- Screw parts (2 and 3/Fig. 2) together with the loose spacer.
  Fastening:
  - a/Fig. 2: long sleeve, screw: M5 x 40 mm
  - b/Fig. 2: short sleeve, screw: M5 x 21 mm
  - c/Fig. 2: short sleeve, screw: M5 x 24 mm.
- Remove the cover from the control (1/Fig. 4).
- The retaining pins are already mounted on the board (AS 03).
  - Attach additional board MUP D3 from the conversion kit in position (1/Fig. 5) and screw down.
- Before mounting the retaining pins on the board.
  - Remove all cables.
  - Remove the control.
  - Remove the board from the mounting.
  - Mount the retaining pins.
  - Screw the board to the mounting again.
  - Attach additional board MUP D3 from the conversion kit in position (1/Fig. 5) and screw down.
  - Replace the control.
  - Reconnect all cables.
- Reattach the cover on the control (1/Fig. 4).

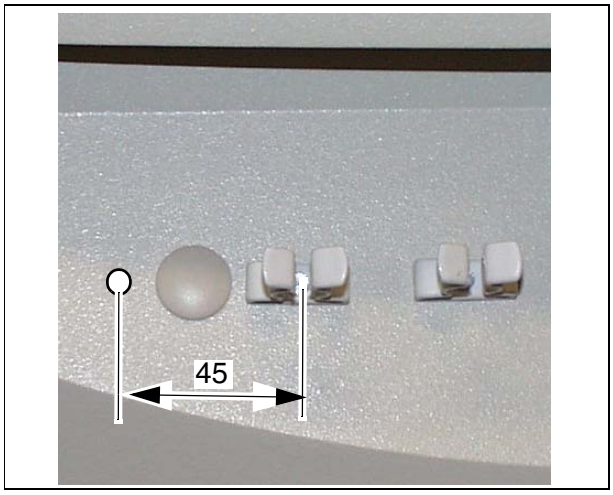

Fig. 6

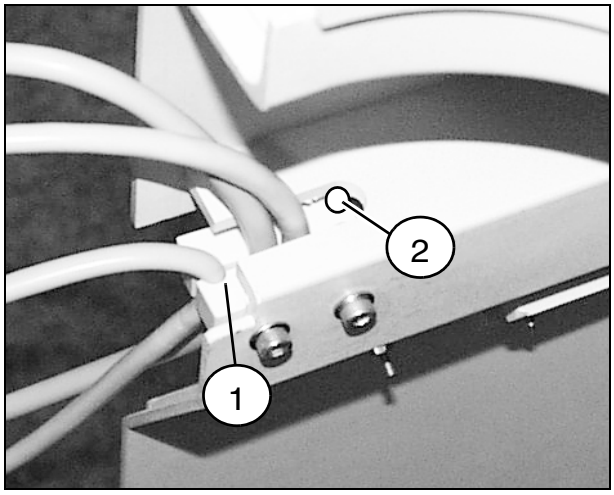

Fig. 7

Fig. 8

- Unscrew the mounting (1/Fig. 7) (to facilitate installation of the cables at a later point, mark the length and position).
- If three connector mountings (Fig. 6) are not available, then drill a 2.5 mm hole (see Fig. 6). Mount the connector mounting as for those opposite.
- Connect the cable from the conversion kit to board D3.X29 in the LITHOSTAR MODULARIS.
- Screw down the mounting (1/Fig. 7) again with the three old cables and the new cable.
- At the back of the SONOLINE Prima mount the adapter from the conversion kit to the RS 2332C connection (1/Fig. 15, 16, 17).

Cable mounting on the carrier arm

- Instead of the covering screw, use the screw supplied to screw down the mounting (1/Fig. 8).

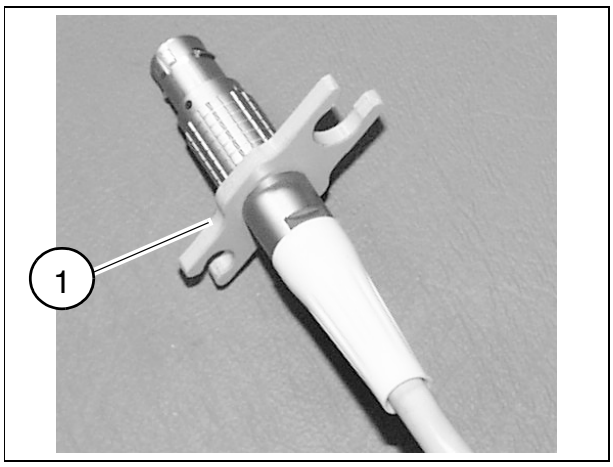

Fig. 9

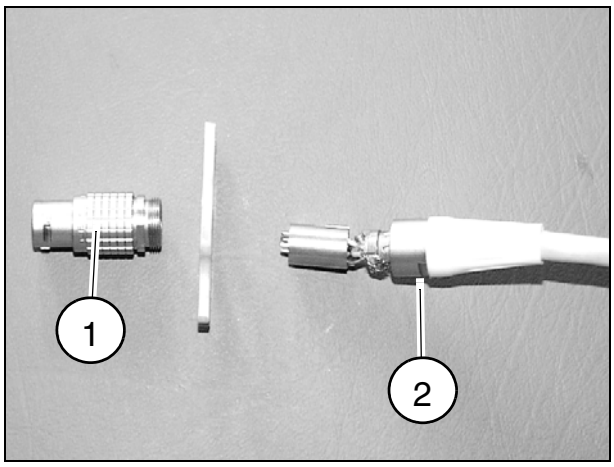

Fig. 10

Cable holder on the cable

- If the holder (1/Fig. 9) is not yet located on the cable for the ultrasound mounting, then proceed as follows:
  - Unscrew connectors, hold part (1/Fig. 10) firmly and rotate part (2/Fig. 10).
  - Push holder (1/Fig. 9) onto part 2 (the depression must be pointing towards part 2).
  - Screw connectors together again.

Ultrasound probes

- Prepare the sector probe/ array probe according to Chapters 3 - 9 of this document.

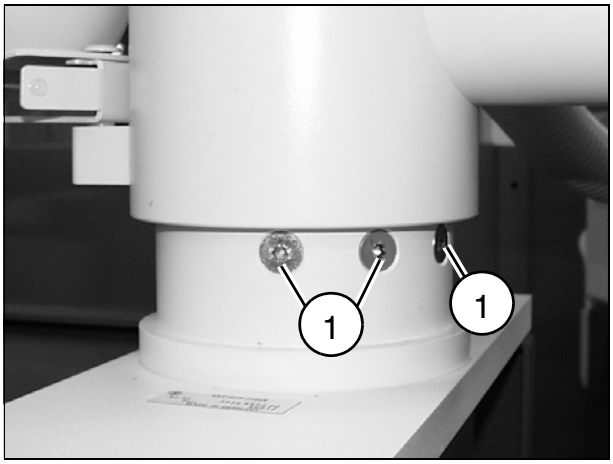

Fig. 11

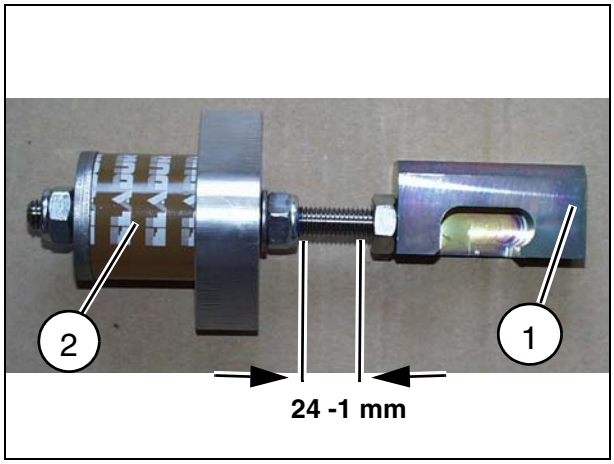

Fig. 12

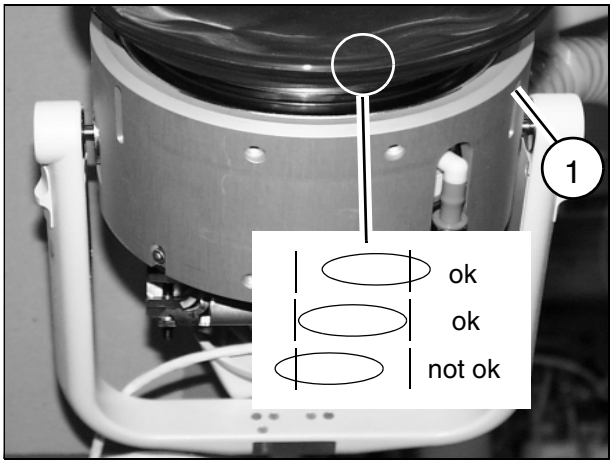

Fig. 13

Compensating springs for carrier arms

Only for systems up to and including Serial No. 01024.

- Put the carrier arm in a vertical position. Remove the cover from the column and the mounting for the ECG triggering.
- Remove the cover from the high voltage connection on the charging set (it will be easier to remove the spring mounting).
- Remove the 3 screws (1/Fig. 11) and then remove the spring mounting downwards.
- Replace the compensating springs (2/Fig. 12) with new ones.
  - For the mounting (1/Fig. 12) make sure to set the correct distance (see Fig. 12).
- Replace the spring mounting.
- Carry out the following check:
  - Position the carrier arm horizontally and in the docking position (central locking pos.).
  - Place a spirit level on the carrier arm (1/Fig. 13).
  - The bubble may move to the right, but not to the **left** (Fig. 13).

- Check the isocenter with X-Ray.

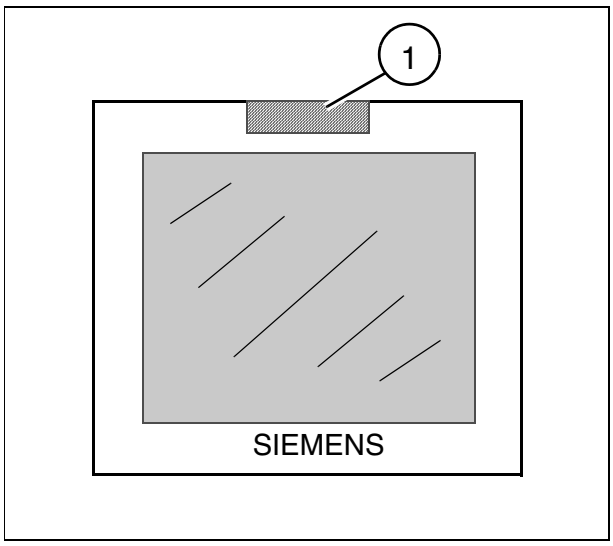

Fig. 14

Adhesive labels for ultrasound unit

- Attach the "LITHOSTAR MODULARIS" label included in the shipment on the monitor of the ultrasound unit (1/Fig. 14) (this label is used to identify which ultrasound unit is functioning with the LITHOSTAR MODULARIS).

Adjustment and startup

- Switch the system on.
- Set the S2 switch on the D3 board to the Service position.
- Connect the Service PC and establish the connection (see Service Instructions, Chap. 3).
- Software VA00F or higher must be installed in the LITHOSTAR MODULARIS.
  If it is not, install the software from the update kit.
  See Service Instructions, SPL1-130.061.01.
- Install the software for the ultrasound unit, according to unit type (Chap. 3-7).
- Enable ultrasound localization (Chapter 3 of this document, "Selecting the MODULARIS crosshairs.....).

- Check the isocenter with X-ray.
- Check the isocenter as described in Chapter 6 of this document.

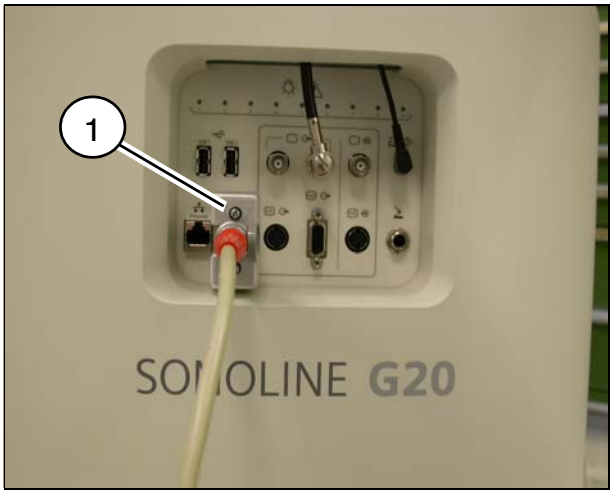

Fig. 15

1
CCIR
625/50
525/60
EIA
75 Ω
Hi-Z
1 V (p-p)
5 V (p-p)
Danger: Risque d' explosion.
Peligro: Riesgo de explosión.
Pericolo: Rischio di esplosione. Non usare in presenza di anestetici infiammabili.
Caution: Risk of electric shock. Do not open. Refer servicing to qualified service personnel.
Attention: Risque de choc electrique. Ne pas ouvrir.
Achtung: Risiko eines elektrischen Schlages. Gerät nicht öffnen. Wenden Sie sich an qualifiziertes Service Personal.

Fig. 16

LithoShare with several ultrasound units

Perform for each ultrasound unit.

SONOLINE G20

- Screw the plug adapter (1/Fig. 15) onto the serial interface.
- Install the software version V1.0.302 - or higher - in the SONOLINE G20 (see SONOLINE G20 operating instructions, Chapter 4).
- Enable the ultrasound localization (Chapter 3 of this document "Selection of the MODULARIS cross.....).

SONOLINE Adara

- Screw the plug adapter (1/Fig. 16) onto the serial interface.
- Install the software version 2.0.0 in the SONOLINE Adara (see SONOLINE Adara operating instructions, section 7-19).
  - Only for an existing SONOLINE Adara:
    Before the new software V.2.0.0is installed, back up the "defaults" and "quick sets" (see SONOLINE Adara operating instructions, section 7-15...).
    After the software is installed, load the saved presets back in the ultrasound unit (see SONOLINE Adara operating instructions, section 7-17).
- Enable the ultrasound localization (Chapter 3 of this document "Selection of the MODULARIS cross.....).

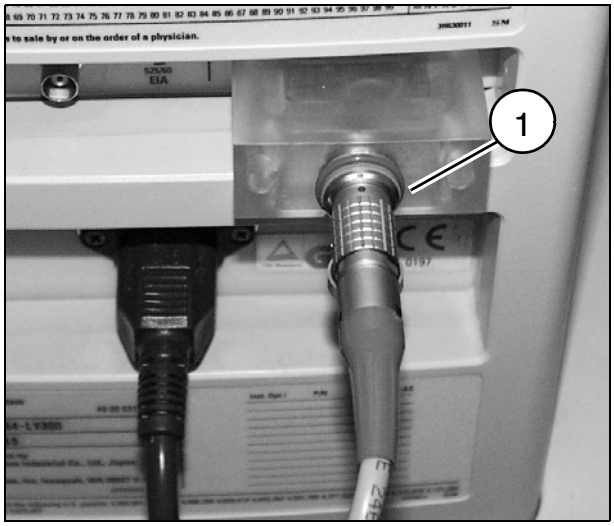

Fig. 17

SONOLINE Prima

- Screw on the plug adapter (1/Fig. 17).
- Install the software version 2.8.0 in the SONOLINE Prima (see SONOLINE Prima operating instructions, section 8-22).
  - Only for an existing SONOLINE Prima:
    Before the new software V.2.0.0is installed, back up the "user presets" and "quick sets" (see SONOLINE Prima operating instructions, section 8-16...).
    After the software is installed, load the saved presets back in the ultrasound unit (see SONOLINE Prima operating instructions).
- Enable the ultrasound localization (Chapter 3 of this document "Selection of the MODULARIS cross.....).
- Prepare the ultrasound probes according to section 3-9 of this document.
- Check the isocenter according to Chapter 6 of this document.

Preparations

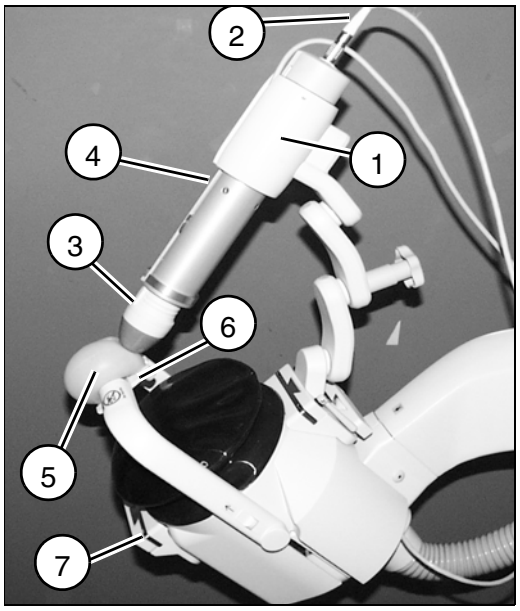

Fig. 1

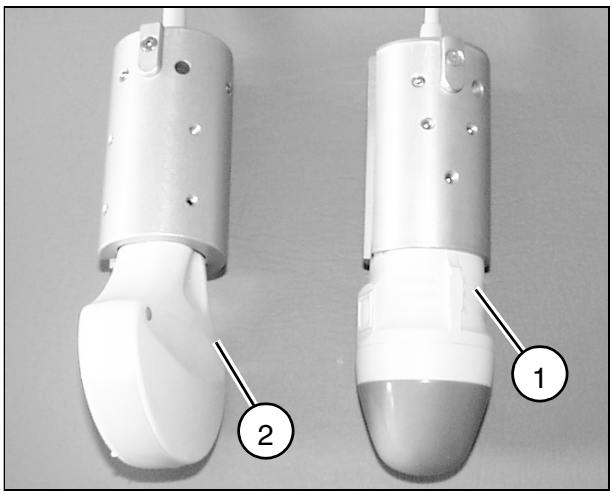

Fig. 2

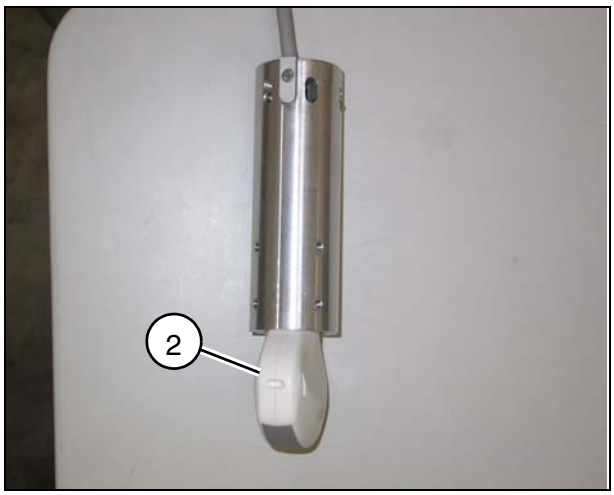

Fig. 3

NOTE	**Only the probes approved for the corresponding SONOLINE may be used.**

- Fit the holder (1/Fig.1) (see also the operating instructions).
- Insert an ultrasound probe (sector probe (1/Fig. 2) or array probe (2/Fig. 2/Fig. 3) in the holder (3/Fig. 1). Carefully insert the cable of the probe in the longitudinal groove (4/Fig. 1).
- Plug in the cable (2/Fig. 1) and connect the probe to the ultrasound unit.
- Make the cable connection (marked orange) between LITHOSTAR MODULARIS and the ultrasound unit.

Checking the target on the Sonoline G20

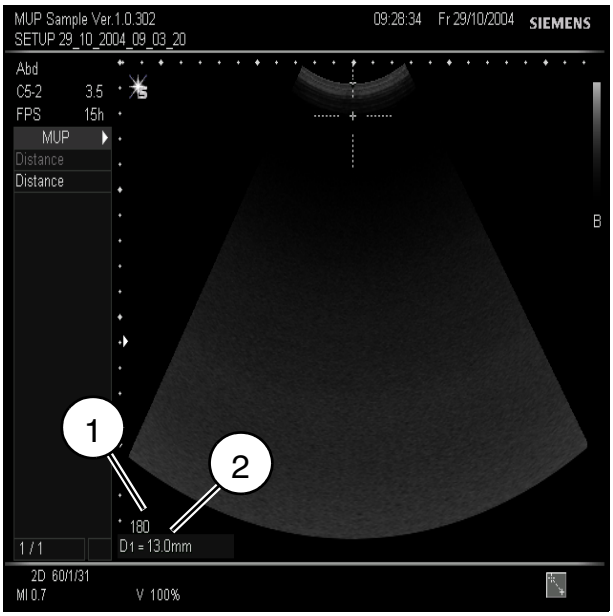

Fig. 4

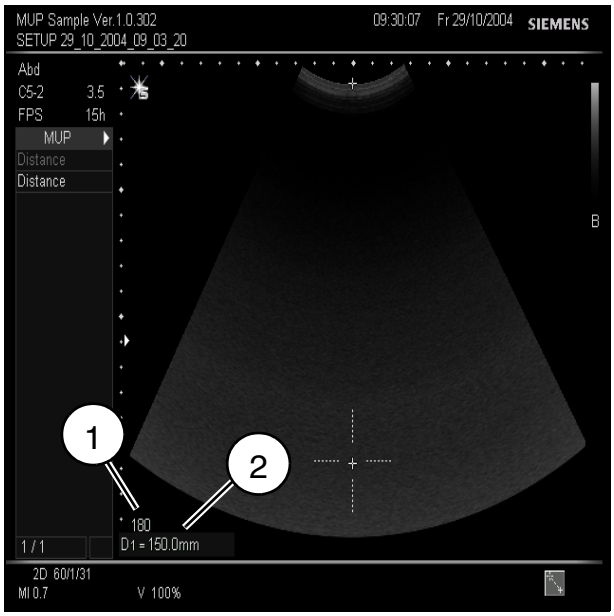

Fig. 5

NOTE

The isocenter must be checked with evry type of probe and after every probe change.

NOTE

The designations of the keys can vary according to language version.
Comparison table, see SONOLINE operating instructions.

- Set the value (1/Fig. 4, 5) to 180 with the "Image field/zoom" knob.
- Push the ultrasound probe as far as possible up to the shock wave head.
- Press the "Measurement" key and select the "Set" measuring mark.
- Move to the center of the crosshair with the trackball. A value of 13 mm $\pm$ 1 mm must appear in the display (2/Fig. 4).
- Press the "Measurement" key ("Freeze" is deselected).
- Shift the ultrasound probe as far as possible in the other direction.
- Press the "Measurement" key and select the "Set" measuring mark.
- Move to the center of the crosshair with the trackball. A value of 151 mm $\pm$ 1 mm must appear in the display (2/Fig. 5).
- If this is not the case, the adjustment process for the potentiometer in the ultrasound arm must be repeated or the ultrasound arm must be replaced.

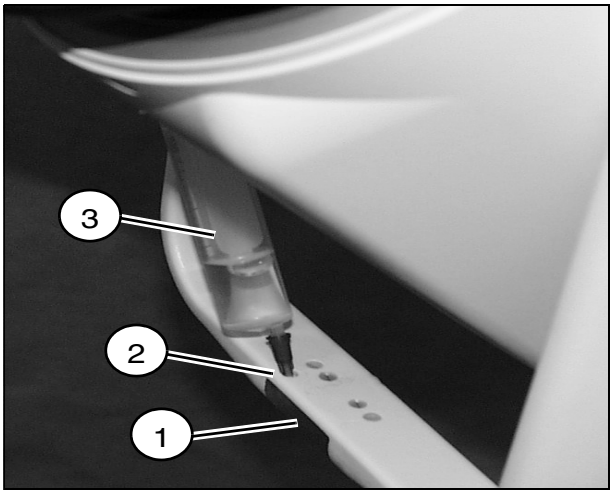

Fig. 6

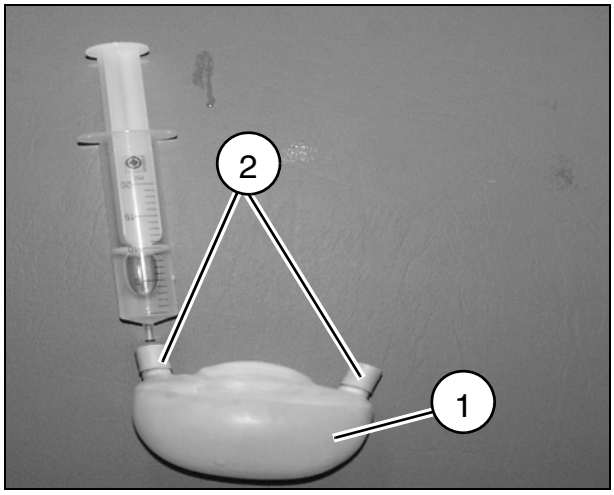

Fig. 7

Check of image tilt

NOTE	**The isocenter must be checked mit <u>every</u> type of probe and after <u>every</u> probe change**

- Check that the isocenter phantom (1/Fig. 6) is filled with water, if not remove the screw (2/Fig. 6) and fill water with a syringe (3/Fig. 6).
  No air bubbles may be present. Screw the screw back in.
- Hinge the isocenter phantom up.
- Fill the water bladder with water (approx. 100 - 120 ml, i.e. 5 - 6 syringes @20 ml) (1/Fig. 7):
  - Fill a syringe with distilled water. Remove the air remaining in the syringe.
  - Push the syringe needle through one of the valves (2/Fig. 7) and empty the contents of the syringe into the water bladder. The valve has a self-closing membrane.
  - Repeat the filling process until the water bladder if filled with approx. 200 - 120 ml water.
  - After filling there must not be any air bubbles in the water bladder; withdraw air bubbles with the syringe.
- Apply contact gel to the isocenter phantom.
- Fasten the water bladder (5/Fig. 1) with the holding part (6/Fig. 1) to the isocenter phantom.
- Apply contact gel to the ultrasound probe.
- With the "Image field/zoom" knob set the value "50" (Fig. 8) - bottom left in the ultrasound image.
- Push the probe so far forwards (3/Fig. 1) until the isocenter cross is approximately in the center of the SONOLINE Prima screen.
- Press the menu key and display this.

Fig. 8

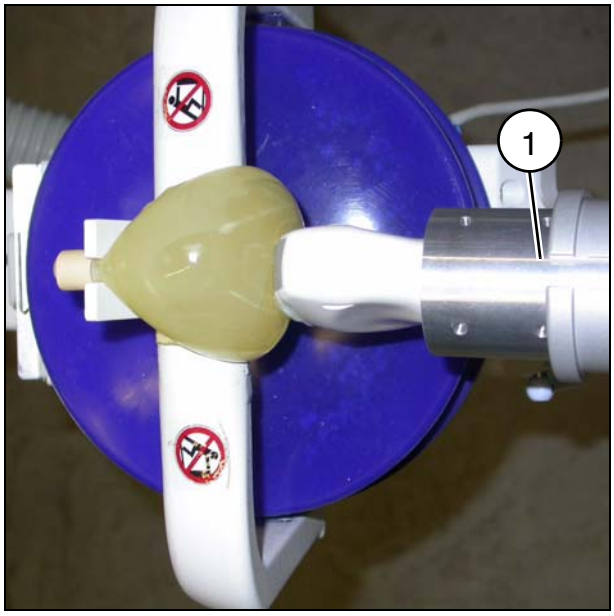

Fig. 9

- Make the following basic settings on the ultrasound unit:

Value:	Setting with:	German	English	French	Spanish
5 (Fig. 8)	Set trackball to Edge (white background) then press ⊕ and set value with "Select" controller.	FV	Edge	Côté	Contorno
35 dB (Fig. 8)	Set trackball to DR (white background) then press ⊕ and set value with "Select" controller.	DR	Dyn Rng	DR	Cam Din

- Set all slide controls all the wayto the left.
- The image flip key must not be selected.
- The corresponding ultrasound probe is selected on switching on. If a second ultrasound probe is present, then select the probe with the key.
- Check that the ultrasound arm is as shown in Fig. 1, if not align it.
  The longitudinal groove must be visible (1/Fig. 9).

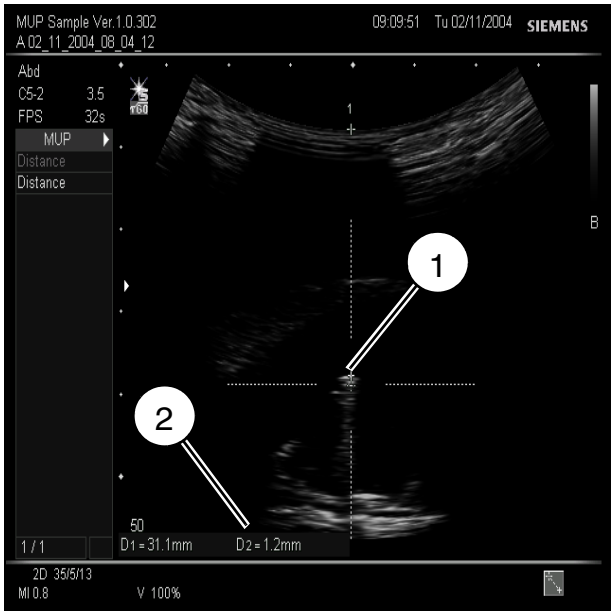

Fig. 10

Distance check: height

- Press the "Measurement" key.
- With the trackball set the cross on center of target cross.
- Press the Measurement key.
- Move the trackball until the cross lies in the center of the isocenter cross (1/Fig. 10).
- Press the "Measurement" key.
- Move the cross "+2" with the trackball on the longitudinal axis of the target line into the isocenter.
- Press the ⊕ key.
- Move the cross with the trackball horizontally into the center of the white area on the isocenter phantom.
- The displayed value for "D2" (2/Fig. 10) must be between 1 and 5 mm. This has validity only for the default values, see instructions SPL1-130.038.01.. .
- Press the ↩ key.

Distance check: side

- Press the ⊙ key two times (cross "+1" is not required in this measurement).
- Move the cross "+2" with the trackball onto the longitudinal axis of the target line, at the height of the isocenter.
- Press the ⊕ key.
- Move the cross with the trackball horizontally into the center of the white area on the isocenter phantom.

- If the center point of the white area is not in the isocenter (allowed deviation ± 0,5 mm from the center):
  - Note the value of D2 (with sign):
    If the ball image is displayed shifted to the left of the isocenter, then the correction value must receive a negative sign (to the right is positive sign).
  - Press the F6 key.
  - Select "MUP" with the trackball.
  - Press the "Set" key
  - Press the "5" key.
  - Enter the password.
  - Select ok with the trackball.
  - Press the "Set" key.
  - With the trackball select the value for image tilt and increase it with the "Set" key.

German:	Bildneigung Array	**French:**	Basculement d'image sondes conv.
English:	Image Tilt Array	**Spanish:**	Inclinar imagen transductor curvo

  - Set half value of D2.
    Example: D2 = 1.2 mm ⇒ enter -06 .
  - Press the key.

  - Check the deviation, if the white area is not in the center of the isocenter, repeat the process.
- After the setting fasten the holder for the ultrasound probe to the holding point (7/Fig. 1). With every probe check that the setting in this position is also in order. Make no changes to the image tilt setting.
- After the check stow the parts in the corresponding transport cases.

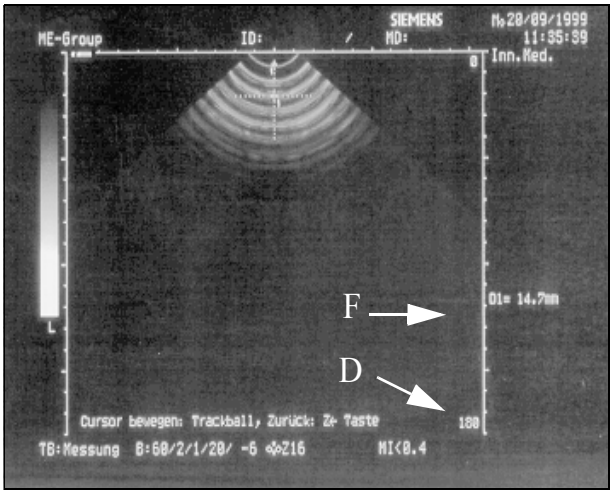

Fig. 11

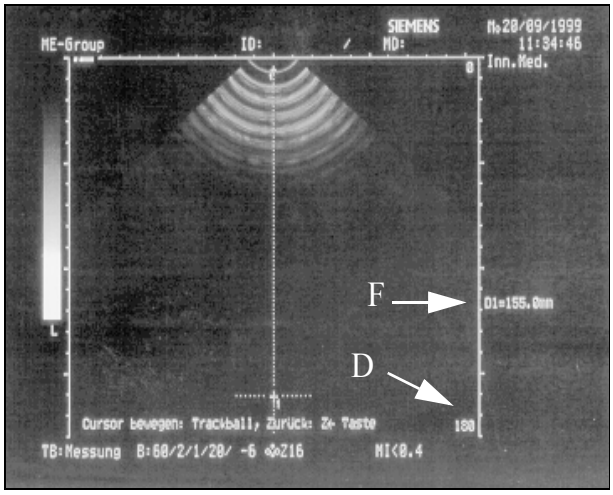

Fig. 12

Checking the target on the Sonoline Adara

NOTE

The isocenter must be checked with <u>every</u> probe type and after <u>every</u> replacement of a probe.

- Set the value (D/Fig. 10,11) to 180 using the knob .
- Slide the ultrasound probe all the way forward to the shock wave head.
- Press the key and select the measuring point .
- Use the track ball to move to the center of the crosshairs. In the display (F/Fig. 11), a value of - see Table - must appear that is relative to the probe.

Probe	Changeover with	Value for D1	
Sector (1/Fig. 2)		15 ± 1 mm	with default values, see SPL1-130.038.01
Array (2/Fig. 2)		13 ± 1 mm	

- Press the key ("Freeze" is deselected).
- Move the ultrasound probe all the way in the other direction.
- Press the key and select the measuring point .
- Use the track ball to move to the center of the crosshairs. In the display (F/Fig. 12), a value of - see Table - must appear that is relative to the probe. If this is not the case, the adjustment procedure must be repeated for the potentiometer in the ultrasound arm or the ultrasound arm must be replaced.

Probe	Changeover with	Value for D1	
Sector (1/Fig. 2)		153 ± 1 mm	with default values, see SPL1-130.038.01
Array (2/Fig. 2)		151 ± 1 mm	

- Press the key ("Freeze" is deselected).

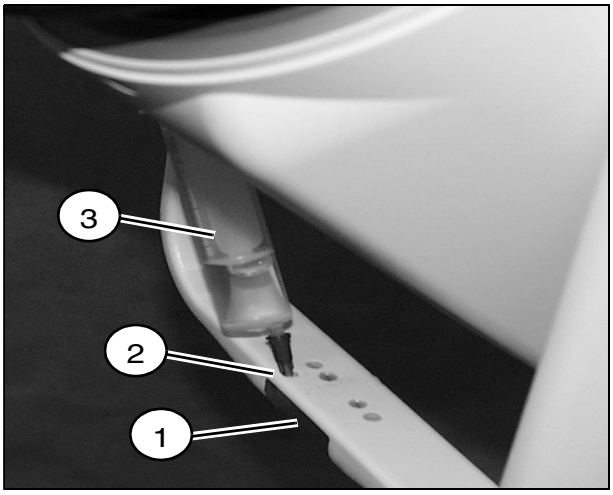

Fig. 13

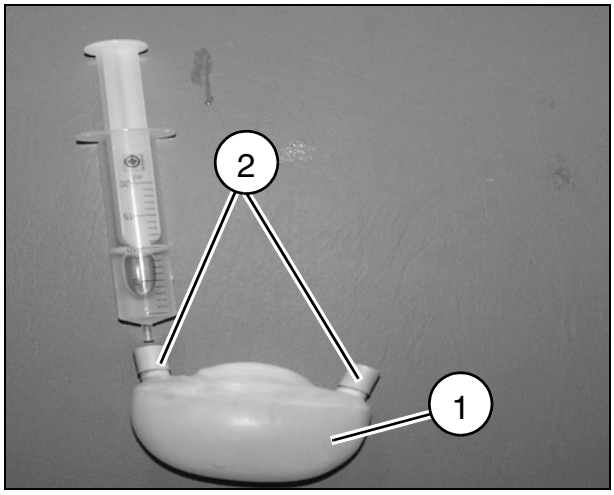

Fig. 14

Checking image tilt

NOTE	**The isocenter must be checked with <u>every</u> probe type and after <u>every</u> replacement of a probe.**

- Check whether the isocenter phantom (1/Fig. 13) is filled with water; if not, remove screw (2/Fig. 13) and fill in water with a syringe (3/Fig. 13).
  There may not be any air bubbles. Turn in the screw again.
- Lift up the isocenter phantom.
- Fill the water bladder with water (approx. 100 - 120 ml, i.e. 5 - 6 syringes, each 20 ml) (1/Fig. 14):
  1. Fill a syringe with distilled water. Remove any air that may be trapped in the syringe.
  2. Insert the syringe needle through one of the valves (2/Fig. 14) and empty the syringe contents in the water bladder. The valve has a self-closing membrane.
  3. Repeat steps 1 and 2 until the water bladder is filled with approx. 100 - 120 ml water.
  4. After filling, there may not be any air bubbles in the water bladder. If there are any air bubbles, remove them using the syringe.
- Spread contact gel on the isocenter phantom.
- Secure the water bladder (5/Fig. 1) with the holder (6/Fig. 1) to the isocenter phantom.
- Spread contact gel on the ultrasound probe.
- Use the knob to set a value of "60" (D/Fig. 15).
- Move the probe forward (3/Fig. 1) until the isocenter crosshair is approx. in the center of the SONOLINE Prima screen.

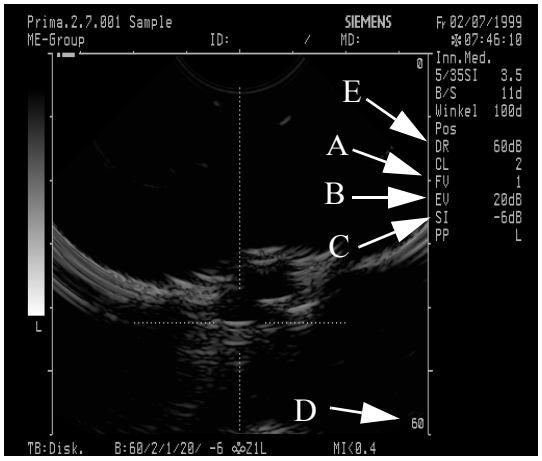

Fig. 15

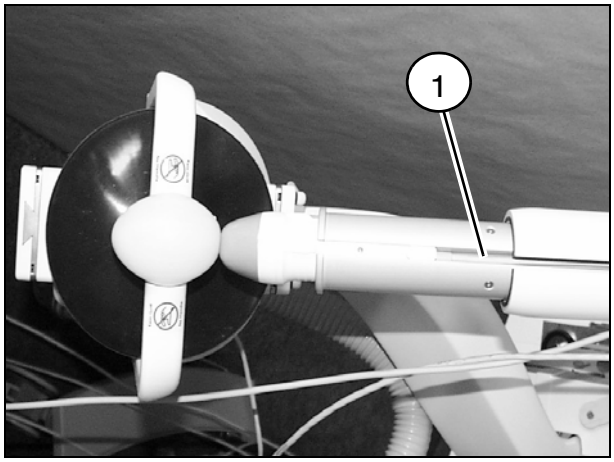

Fig. 16

- Make the following basic settings at the ultrasound unit:

Value:	Adjust using:	German	English	French	Spanish
- 6 dB (C/Fig. 15)	Set trackball to SI (white background), then actuate ⊕ and set value with control	SI	Output	Sortie	Salida
20 dB (B/Fig. 15)	Knob B	EV	Gain	Gain	Ampl
3 (A/Fig. 15)	Set trackball to FV (white background), then actuate ⊕ and set value with control	FV	Edge	Côté	Contorno
60 (D/Fig. 15)	Knob	-------	-------	-------	-------
60 dB (E/Fig. 15)	Set trackball to DR (white background), then actuate ⊕ and set value with control	DR	Dyn Rng	DR	Cam Din

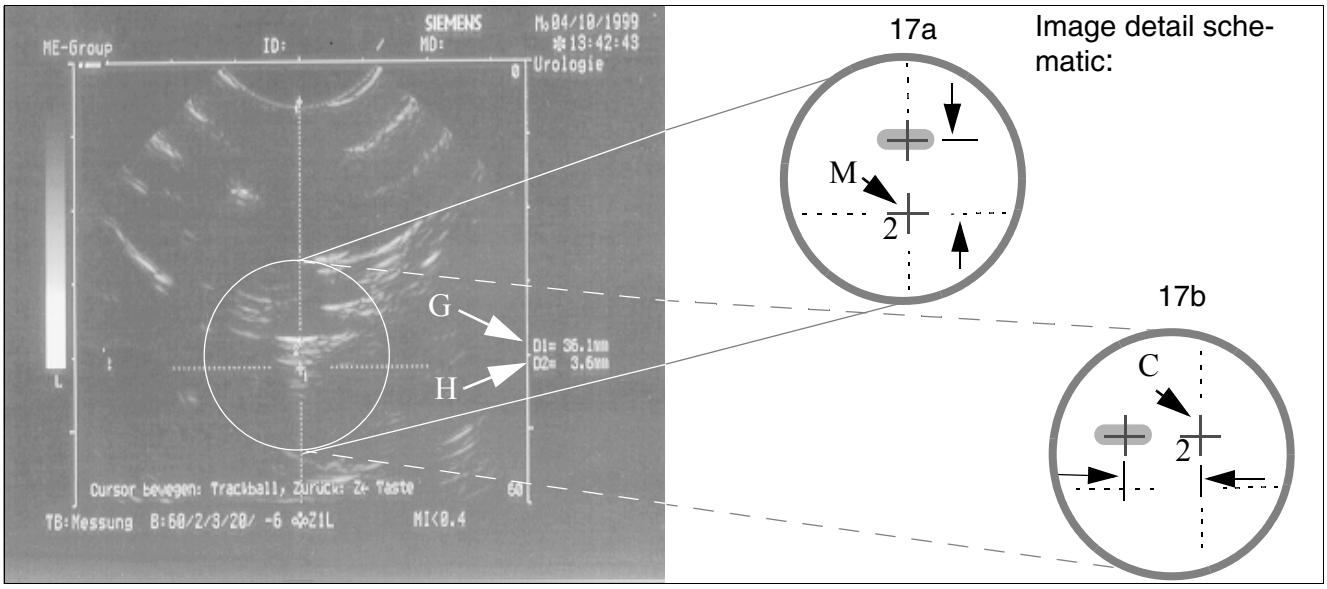

Fig. 17

- Set all slide controls all the way to the left.
- The image flip key may not be selected.
- The corresponding ultrasound probe is selected during switch-on. If there is a second ultrasound probe, the select the probe with the key.
- Check whether the ultrasound arm is as shown in Fig. 16; if not, position it accordingly. The long slot must be visible (1/Fig. 16).

Checking the distance: Height (17a/Fig. 17)

- Press the key.
- Move the track ball until the cross "+1" is in the center of the isocenter crosshair.
- The value displayed for "D1" (G/Fig. 17) must be between 33 and 36 mm; if not, move the probe appropriately in the longitudinal axis.
- Press the key.
- Move the cross "+2" using the track ball onto the longitudinal axis of the target line in the isocenter (M/Fig. 17a).
- Press the key.
- Move the cross using the track ball horizontally into the center of the white area (17a/Fig. 17) of the isocenter phantom
- The value displayed for "D2" (H/Fig. 17) must be between 1 and 5 mm. This is only valid for the default values, see instructions, SPL1-130.038.01...
- Press the key.

Checking the distance: Side (17b/Fig. 17)

- Press the ⊙ key twice (cross "+1" is not needed for this measurement).
- Using the trackball, move the cross "+2" onto the longitudinal axis of the target line at the height of isocenter (C/Fig. 17).
- Press the ⊕ key.
- Move the cross using the track ball horizontally into the center of the white area of the isocenter phantom.
- If the center point of the white area (17b/Fig. 17) is not in the center (permitted difference: ± 0.5 mm from the center):
  - Make a note of the value of D2 (with mathematical sign): If the display of the ball (17b/Fig. 17) appears to the left of the isocenter, the correction value must have a negative sign in front (to the right is a positive sign in front).
  - Press the ↰ key.
  - Press the "F4" key.
  - Press the "5" key.
  - Select "MUP" with the track ball.
  - Press the ⊕ key.
  - Enter the password.
  - Use the track ball to select the appropriate probe during image tilt.

German:	Bildneigung Sektor Bildneigung Array	**French:**	Basculement d'image sondes sect. Basculement d'image sondes conv.
English:	Image Tilt Sector Image Tilt Array	**Spanish:**	Incl. imagen transd. sect mecanico Inclinar imagen transductor curvo

  - Press the ⊕ key.
  - Enter half the value of D2 (H/Fig. 17). **Example:(H/Fig. 17):** D2 = 1,2 mm ⇒ Enter: -06 .
  - Press the ⊕ key.
  - Press the ↰ key twice.
  - Check the difference; if white area (17b/Fig. 17) is not in the center of the isocenter, repeat the procedure.
- Press the ↰ key.
- After adjusting the mount for the ultrasound probe, attach it on the mount (7/Fig. 1). For each probe, check whether the adjustment in this position is also okay. Do not make any change to the image tilt adjustment.
- Following the check, store the parts in the appropriate transport cases.

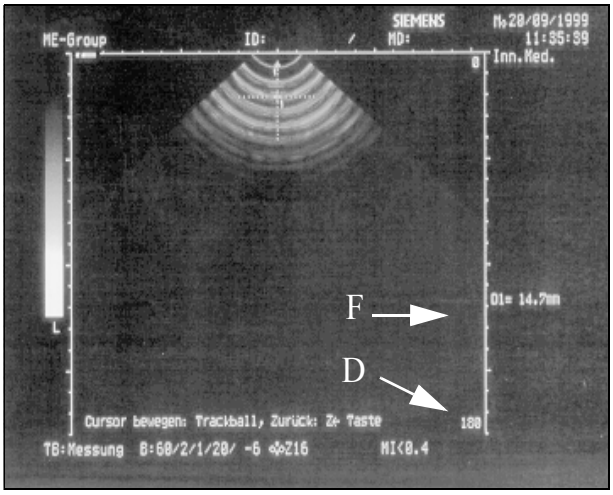

Fig. 18

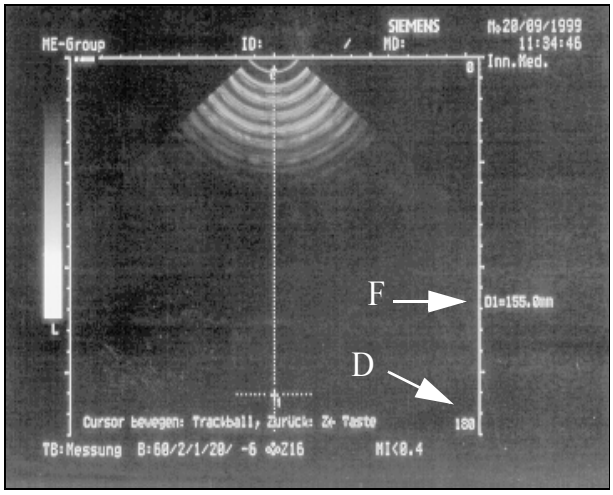

Fig. 19

Checking the target on the Sonoline Prima

NOTE

The isocenter must be checked with <u>every</u> probe type and after <u>every</u> replacement of a probe.

- Set the value (D/Fig. 18, 19) to 180 using the knob .
- Slide the ultrasound probe all the way forward to the shock wave head.
- Press the key and select the measuring point .
- Use the track ball to move to the center of the crosshairs. In the display (F/Fig. 18), a value of - see Table - must appear that is relative to the probe.

Probe	Select using	Value for D1	
Sector (1/Fig. 2)		15 ± 1 mm	with default values, see SPL1-130.038.01
Array (2/Fig. 2)		13 ± 1 mm	

- Press the key ("Freeze" is deselected).
- Move the ultrasound probe all the way in the other direction.
- Press the key and select the measuring point .
- Use the track ball to move to the center of the crosshairs. In the display (F/Fig. 19), a value of - see Table - must appear that is relative to the probe. If this is not the case, the adjustment procedure must be repeated for the potentiometer in the ultrasound arm or the ultrasound arm must be replaced.

Probe	Select using	Value for D1	
Sector (1/Fig. 2)		153 ± 1 mm	with default values, see SPL1-130.038.01
Array (2/Fig. 2, 3)		151 ± 1 mm	

- Press the key ("Freeze" is deselected).

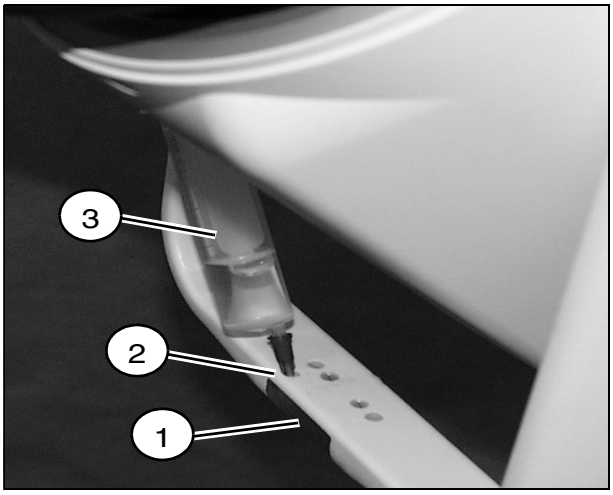

Fig. 20

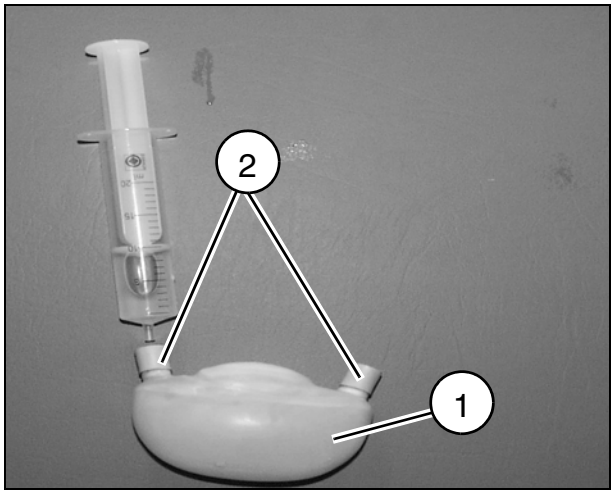

Fig. 21

Checking image tilt

NOTE	**The isocenter must be checked with <u>every</u> probe type and after <u>every</u> replacement of a probe.**

- Check whether the isocenter phantom (1/Fig. 20) is filled with water; if not, remove screw (2/Fig. 20) and fill in water with a syringe (3/Fig. 20).
  There may not be any air bubbles. Turn in the screw again.
- Lift up the isocenter phantom.
- Fill the water bladder with water (approx. 100 - 120 ml, i.e. 5 - 6 syringes, each 20 ml) (1/Fig. 14):
  1. Fill a syringe with distilled water. Remove any air that may be trapped in the syringe.
  2. Insert the syringe needle through one of the valves (2/Fig. 21) and empty the syringe contents in the water bladder. The valve has a self-closing membrane.
  3. Repeat steps 1 and 2 until the water bladder is filled with approx. 100 - 120 ml water.
  4. After filling, there may not be any air bubbles in the water bladder. If there are any air bubbles, remove them using the syringe.
- Spread contact gel on the isocenter phantom.
- Secure the water bladder (5/Fig. 1) with the holder (6/Fig. 1) to the isocenter phantom.
- Spread contact gel on the ultrasound probe.
- Use the knob to set a value of "60" (D/Fig. 15).
- Move the probe forward (3/Fig. 1) until the isocenter crosshair is approx. in the center of the SONOLINE Prima screen.

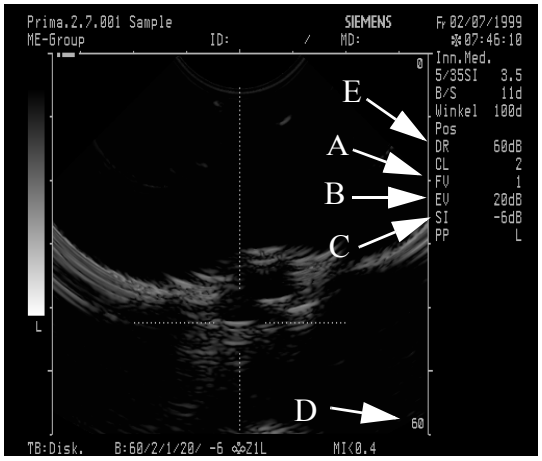

Fig. 22

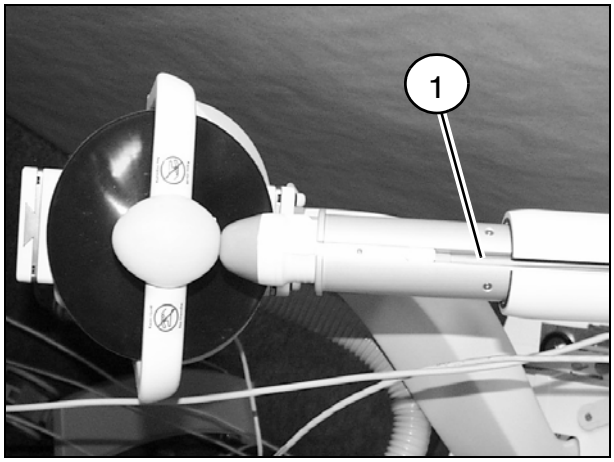

Fig. 23

- Make the following basic settings at the ultrasound unit:

Value:	Adjust using:	German	English	French	Spanish
- 6 dB (C/Fig. 22)	Knob	SI	Output	Sortie	Salida
20 dB (B/Fig. 22)	Knob B/M	EV	Gain	Gain	Ampl
3 (A/Fig. 22)	set track ball to FV (highlighted in white) then press	FV	Edge	Côté	Contorno
60 (D/Fig. 22)	Knob	-------	-------	-------	-------
60 dB (E/Fig. 22)	Knob	DR	Dyn Rng	DR	Cam Din

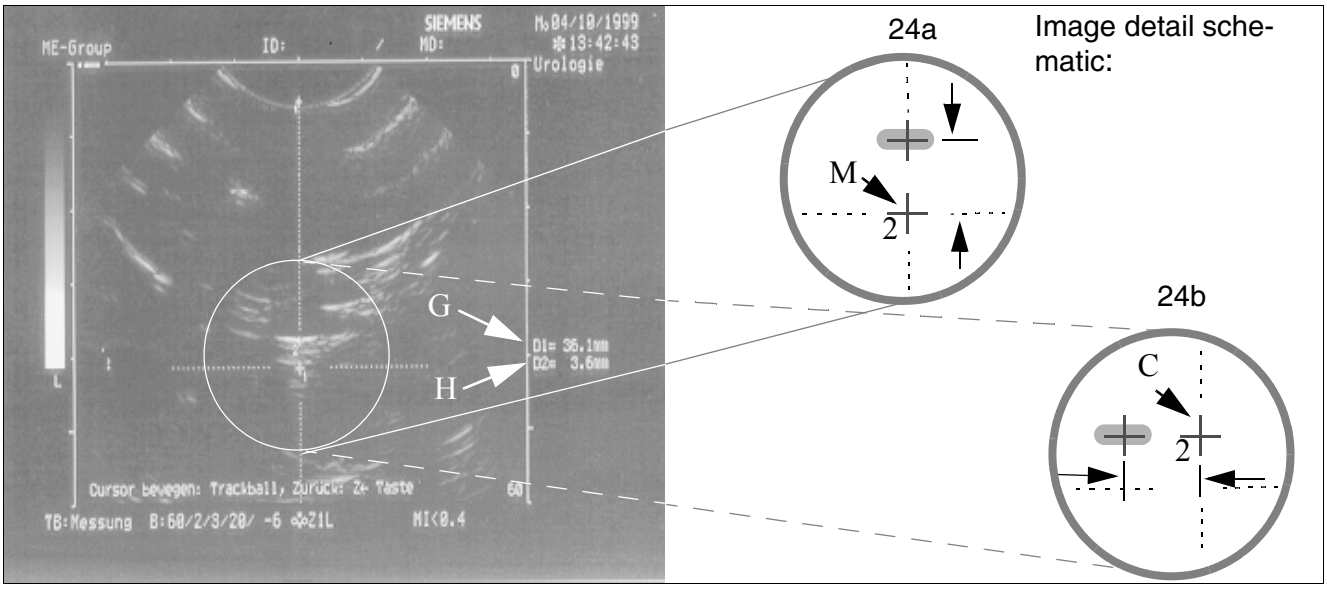

Fig. 24

- Set all slide controls all the way to the left.
- The image flip key may not be selected.
- Select the appropriate ultrasound probe:

Sector probe	Array probe

- Check whether the ultrasound arm is as shown in Fig. 16; if not, position it accordingly. The long slot must be visible (1/Fig. 16).

Checking the distance: Height (24a/Fig. 24)

- Press the key.
- Move the track ball until the cross "+1" is in the center of the isocenter crosshair.
- The value displayed for "D1" (G/Fig. 24) must be between 33 and 36 mm; if not, move the probe appropriately in the longitudinal axis.
- Press the key.
- Move the cross "+2" using the track ball onto the longitudinal axis of the target line in the isocenter (M/Fig. 24a).
- Press the key.
- Move the cross "+2" using the track ball horizontally into the center of the white area (24a/Fig. 24) of the isocenter phantom
- The value displayed for "D2" (H/Fig. 24) must be between 1 and 5 mm. This is only valid for the default values, see instructions, SPL1-130.038.01...
- Press the key.

Checking the distance: Side (24b/Fig. 24)

- Press the ⊙ key twice (cross "+1" is not needed for this measurement).
- Move the cross "+2" using the track ball onto the horizontal axis of the target line (C/Fig. 24b).
- Press the ⊕ key.
- Move the cross "+2" using the track ball horizontally into the center of the white area of the isocenter phantom.
- If the center point of the white area (24b/Fig. 24) is not in the center (permitted difference: ± 0.5 mm from the center):
  - Make a note of the value of D2 (with mathematical sign):
    If the display of the ball (24b/Fig. 24) appears to the left of the isocenter, the correction value must have a negative sign in front (to the right is a positive sign in front).
  - Press the ↩ key.
  - Press the "F4" key.
  - Press the "5" key.
  - Select "MUP" with the track ball.
  - Press the ⊕ key.
  - Enter the password.
  - Use the track ball to select the appropriate probe during image tilt.

German:	Bildkippung Sektor Bildkippung Array	**French:**	Basculement d'image sondes sect. Basculement d'image sondes conv.
English:	Image Tilt Sector Image Tilt Array	**Spanish:**	Incl. imagen transd. sect mecanico Inclinar imagen transductor curvo

  - Press the ⊕ key.
  - Enter half the value of D2 (H/Fig. 24).
    Example:(H/Fig. 24): D2 = 1,2 mm ⇒ Enter: -06 .
  - Press the ⊕ key.
  - Press the ↩ key twice.
  - Check the difference; if white area (24b/Fig. 24) is not in the center of the isocenter, repeat the procedure.
- Press the ↩ key.
- After adjusting the mount for the ultrasound probe, attach it on the mount (7/Fig. 1). For each probe, check whether the adjustment in this position is also okay. Do not make any change to the image tilt adjustment.
- Following the check, store the parts in the appropriate transport cases.

Customer and country-specific settings

Setting the system clock (if necessary)

- Switch the system on.
- Adjust the service switch on M13/D3/S2 to position 2 (service on).
- Select "service" on the operating panel and then "set clock".
- Select the corresponding item and change the setting.
- Adjust the service switch in M13/D3/S2 to position 1 (service off).

Setting the user language (if necessary)

- Adjust the service switch in M13/D3/S2 to position 2 (service on).
- Select "service" on the operating panel, then "system data" and then "language".
- Using button S5/S6, select the required language and then activate S2 (back).
- Adjust the service switch in M13/D3/S2 to position 1 (service off).

Backup and error memory

- When commissioning is complete, perform a backup and then erase the error memory (e:show error log) (see Service Instructions).
- Erase therapy data (t:show therapy data).

Brief operating instructions

- Affix the brief operating instructions from the folder "LITHOSTAR MODULARIS operating instructions" at the customer's request.

Remaining work

- Attach the label from Register 2 (Log book) at a suitable location.
- Connect and secure the protective conductors to all the covers.
- Measure the protective conductor resistance.

Measurement device:	Protective conductor meter	
Measured value:	**max. 0.2 ohms**	(Ensure compliance with country-specific regulations.) (Current 10 A, voltage drop max. 2 V)
Measurement procedure:	Measure between all accessible, conductive parts of the system and the protective conductor rail in the generator.	
Conditions:	**Protective conductor resistance max. 0.2 ohms** • Reduce the contact resistance (e.g. tighten the screws) • If necessary, increase the diameter of the protective conductor.	

- Clean the system:
  For information on cleaning the system, refer to the chapter on "Cleaning/Disinfection" in the Operating Instructions.
- The manufacturer of this product requires information and the legislator demands proofs that a product delivered free of defects from the factory continues to possess the required and certified quality properties on installation and start-up.
  It is therefore absolutely necessary that the installation report with the installation and start-up data is sent without delay after completion of the work to the address stated on the installation report.
  You will find the report in the system folder.

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NOTICE

After completing all adjustments and measurements, the responsible service engineer should confirm that all the values have been correctly measured and recorded in the measurement protocols by signing his name and the date (system, generator and IQ measurement protocol).

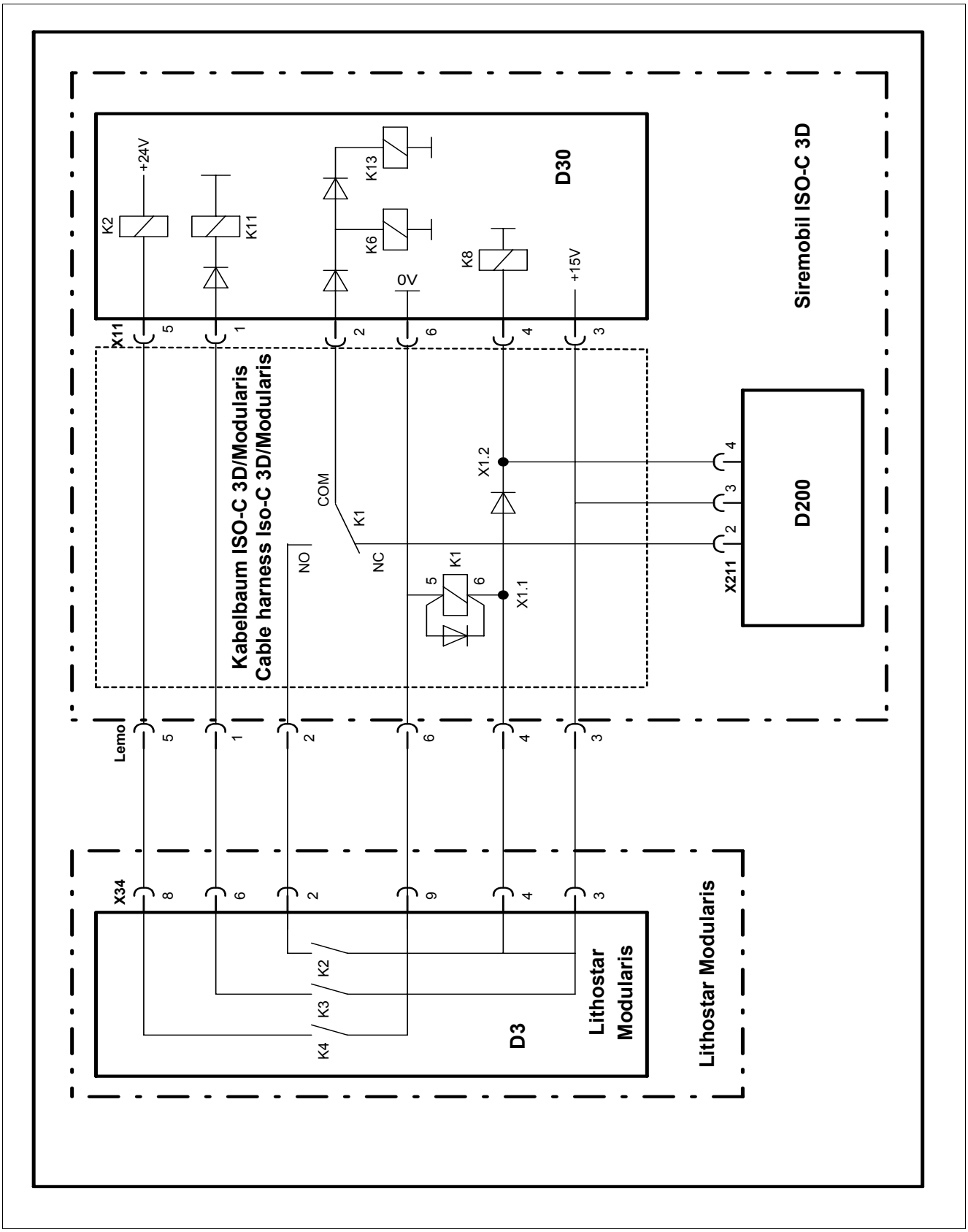
Siremobil ISO-C 3D
D30
+24V
K2
K11
K13
K6
K8
0V
+15V
X11
5
1
2
6
4
3
Kabelbaum ISO-C 3D/Modularis
Cable harness Iso-C 3D/Modularis
COM
K1
NO
NC
X1.2
X1.1
K1
5
6
D200
X211
4
3
2
Lemo
X34
8
6
2
9
4
3
K2
K3
K4
D3
Lithostar Modularis
Lithostar Modularis

Fig. 1

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Changes to previous version 9 - 1

Chap. 0	Cover page, Rev status and table of contents newly generated.
Chap. 1	Technical documentation supplemented.
Chap. 2 to 4	Revised regarding ARCADIS Orbic.

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